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ABSTRACT

Biographical data were collected on 665 students (in grades 11 and 12) previously identified as gifted and 421 other (control) students in an effort to improve identification procedures of students gifted in academic, leadership, or artistic areas; and to reduce racial and other biases when selecting students for specialized training. Ss were given a version of the Biographical Inventory (BI), Form R, (which consists of 300 multiple choice items that allow the individual to describe his past behavior and experiences) as well as a traditional IQ test. Results indicated that the BI scores were effective predictors of membership in either leadership, or artistic high ability groups. BI scores had a significantly lower relationship to membership in various ethnic groups than did IQ scores. (DB)

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FINAL REPORT

The Identification of Academic, Creative and Leadership Talent from Biographical Data

THE INSTITUTE FOR BEHAVIORAL RESEARCH IN CREATIVITY

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1974

FOREWORD

Educators and laymen across the Nation are becoming more aware of the need for additional evaluative measures and methods for our citizens. This is true not only in the schools, both public and private, from the kindergarten through the post graduate institution, but also in industry, in commerce, in the military and in all other facets of human society where judgments must be made by one person on or about another. For many years teachers have administered standardized tests--the group IQ and the achievement battery--to their students. The valid reasons for testing are to help teachers learn more about their students and the level at which they function, so that an educational program can be planned to maximize the child's potentials. All too often, however, parents and students do not understand testing reasons. Frequently, these "test days" strike terror in the hearts of the children. In many cases the child feels that his passing or failing is intimately connected with his test scores. To compound the fear, he most likely will never know the test results. Teachers do not intentionally instill this reaction in the child; rather they try to reassure him by saying that the tests have nothing to do with his placement. The child is perplexed, wondering why his teacher is giving it to him if it hasn't anything to do with pass-fail, for tests in his mind are designed to do this. In addition, thousands of children have been labeled retarded, slow, average, advanced or gifted as a result of these tests and placed in "appropriate" classes. The Federal Courts and parents are challenging traditional methods of evaluation and placement, the instruments being used, and the reasons testing is being done.

Today we realize that we need many ways to evaluate students with greater degrees of accuracy. This research project was an attempt to validate an additional instrument to help us to do a better job in discovering gifted and talented secondary students. The instrument itself is non-threatening, about the individual himself. We feel that the results of this endeavor have been greater than we expected. We intend to conduct additional research to fill in some other areas--i.e., the need to work with the inter-city and rural students; the desire to see what can be done at a lower grade level.

We invite you to share this basic research as we strive to identify and place our pupils more effectively.

A. Craig Phillips
State Superintendent of Public Instruction

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PREFACE

In 1972, Theodore R. Drain, Director, Division for Exceptional Children, and I discussed the procedures used for nominating students to attend the Governor's School of North Carolina, the oldest summer residential honors program in the Nation. The criteria and instruments being used screened out most of our able minority candidates. This problem was presented to the School's Board of Governors, many of whom were already cognizant of these facts and eager to rectify them.

We agreed with Drs. J. P. Guilford and Calvin Taylor that IQ tests, a major item in student selection for the School, measured only a small percentage of the factors of intelligence. Many scholars and researchers say scores on most group IQ tests tend to reflect past educational and environmental experiences rather than innate intelligence. Black and white students from low economic backgrounds frequently have never had these needed experiences, thus, with them, the tests are culturally and economically biased. At the same time that we were working through the problem, Drs. Catherine Bruch and E. Paul Torrance at the University of Georgia, in attempting to reduce this bias, were conducting research to develop the ABDA (Abbreviated Binet for the Disadvantaged). They have found the ABDA less culturally biased. Very little basic research has been done in this area other than these two efforts.

We in the State Department of Public Instruction wrote a proposal which was funded by the Z. Smith Reynolds Foundation, long a friend of gifted and talented programs in North Carolina, through Dr. Dale Gramley, Executive Officer. We contacted Dr. Robert Ellison and David Fox of the Institute for Behavioral Research in Creativity (IBRIC) who agreed to take our data to see if we could develop keys to predict leadership, creative and academic potential among our secondary students.

The proposal was written by Dr. H. T. Conner, State Assistant Superintendent for Research and Development, and Dr. Vester Mulholland. The data was collected through the efforts of: Dr. Bryce Cummings, director of the Leadership School; James L. Bray, Resident Director, and James Wilhelm, a faculty member, The Governor's School; Jim Hall, Director, Division of Cultural Arts in the SDPI, who recommended the outstanding art and music teachers across the state who administered the tests to selected talented students--Mrs. Alice Ehrlich, Broughton High School, Raleigh; Mrs. Wilma King, Garinger High School and Spencer Mims, Myers Park High School, Charlotte-Mecklenburg; Mrs. Gertrude Reed, East Forsyth High School and John Fox, R. J. Reynolds High School, Winston-Salem/Forsyth; Robert Gaskins, Jacksonville Senior High School, Onslow County; Mrs. Jane Price, New Hanover High School, New Hanover County; Gary Shive, Concord Senior High School, Concord; the two superintendents, Dr. Max Abbott of the Fayetteville City Schools and R. E. Lee of the Moore County Schools, from whose pupil populations came the control groups; and almost a hundred guidance counselors from across the State who tested the 1972 Leadership School students.

The IQ tests were corrected, the Data Sheets checked, and the BI score sheets reviewed to make sure the data on each student was complete by the professional and secretarial staff of the Gifted and Talented Section: Jane Allen, Elizabeth Broome, James Coppedge, Jane Ferrell, Henri Fisher,

and Odell Watson. Mr. Drain loaned us the help of two division interns, Richard Miller and Elizabeth Gilchrist.

Close guidance and support was given the whole project by Dr. Conner, Mr. Drain and Dr. Jerome H. Melton, Assistant Superintendent for Program Services. This project was a truly cooperative effort between the Foundation, the Governor's School and its Board of Governors, several areas and divisions within the State Department of Public Instruction, the majority of our local school administrative agencies, and IBRIC. The findings have made the project well worthwhile. Several other basic research studies remain to be done before this test becomes of use to school systems. However, we have here an instrument to help us identify gifted and talented students. This is what the project was all about--a very successful effort.

Cornelia Tongue
Project Director

ABSTRACT[1]

THE IDENTIFICATION OF TALENT FROM BIOGRAPHICAL DATA

Extensive studies involving scientists, nurses, artists, and academic achievers have indicated that biographical information can successfully predict a very wide range of criteria at highly significant levels. In addition, studies within academic settings have revealed that biographical information (BI) has not exhibited the usual degree of racial bias found in many of the more traditional measures, e.g., achievement tests and IQ scores. On the basis of these previous research findings, the principal objectives of the present study were:

1. to improve the identification procedures in academic achievement, leadership ability, and creativity in art and music in the State of North Carolina; and

2. to examine further the characteristics of biographical data as a basis for reducing racial and other biases in the selection of gifted students for specialized training.

A sample of 1086 North Carolina 11th and 12th grade students was taken principally from four schools--the Leadership School, the Governor's School of North Carolina, Fayetteville City Schools, and Moore County Schools. In addition, other students were nominated by teachers in various North Carolina communities as having exceptional ability in the areas of art and music and were included in the sample. The North Carolina Department of Public Instruction selected the students included in the sample and administered the research instruments.

A specially developed version of the Biographical Inventory, Form R, was used to collect life history information for predicting academic achievement, leadership ability, and creativity in art and music. The criteria were delineated by a student being selected for a special program for the gifted or by teacher nominations. Form R is a composite instrument made up of 300 multiple-choice items in which an individual describes himself and his background. The rationale in using such an instrument is very simple--that past behavior, experiences, and self-descriptions can be used as indicators of future performance.

An IQ score--the Otis Mental Ability Score--was included as a traditional predictor of academic achievement. A demographic data form completed by the student's counselor supplied the following information: the student's sex, race, grade level, scaled grade point average, a rating of the student's family income, and the type of community in which the student lived.

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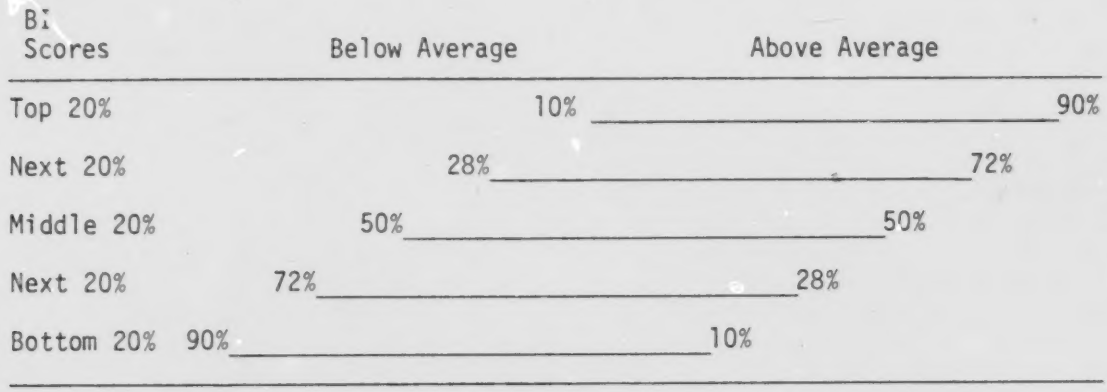
[1]Prepared by Robert L. Ellison, Clifford Abe, David G. Fox, and Kevin E. Coray, Institute for Behavioral Research in Creativity to accompany the Final Report.

RESULTS

The results indicated that the BI scores were extremely effective predictors of criterion group membership which resulted from extensive screening procedures, involving teacher nominations, interviews, and other procedures. Since BI scores were also available from previous studies, these existing procedures for identifying talent could be compared to the criterion selection procedures. The results from these a priori keys were also very encouraging as substantial relationships with the criteria were obtained from the procedures developed earlier. An illustration of how the biographical scores practically paralleled the more extensive screening procedures can be obtained by examining Figure 1 below.



r = .70

Figure 1. The relationship of biographical scores to the leadership criterion

This figure illustrates that 90% of the students who scored in the top 20% on the Biographical Inventory were above average on the leadership criterion. If only the top 10% of the Biographical Inventory scores were considered, then the predictions would be even more accurate. While the figure indicates very high agreement between the criterion measure and the BI scores, it should always be remembered that some students would be identified as being leaders by one method and not the other and vice versa, but these results are a vast improvement over more traditional methods of selection.

The primary criteria of academic achievement, leadership, and artistic performance were all predicted with results comparable to those in Figure 1.[2] These predictions were considerably more effective than the results typically reported for predicting these criteria. The results also indicated that biographical scores had very low relationships with membership in various

[2]The actual cross validity coefficients of the empirical keys for the academic achievement, leadership, and artistic criteria were .77, .71, and .76, respectively.

ethnic groups. This was in marked contrast to the results obtained with the Otis Mental Ability Score, where minority students had lower scores. However, the results for the Otis in identifying the criterion measures indicated that intelligence was a vital factor in current selection procedures for these criteria. The intelligence test measure was somewhat less accurate in identifying talent, however, than the Biographical Inventory.

The results also pointed out the need for attention and effort that should be devoted to identifying talent among low income groups as such students have fewer opportunities for selection into the kinds of specific programs examined in this study.

CONCLUSIONS

1. Since biographical data has resulted in highly significant validities in identifying the criteria of academic achievement, leadership, and creativity in art and music, and has also predicted high school dropouts and delinquency at a high level, further examination and use of the biographical approach is warranted for a wide range of potential applications to help students realize their potential.

2. The Biographical Inventory should be used to help select students for specialized programs within the State of North Carolina. The BI not only contributes to the accuracy of prediction, but also has less racial bias than more traditional measures.

3. The teachers in the State of North Carolina need to be aware of the different types of students who have high potential in various specialized areas, and of the contribution that they can make in aiding these students to achieve their full potential.

INTRODUCTION

The growing awareness of the need for identification of a wider range of talents than traditionally emphasized and for prediction which is non-racially biased has led to dissatisfaction with conventional instruments currently available. The objective of this research was to improve identification procedures in the multiple-talent areas so that the educational system could choose students for specialized training in those areas more efficiently and effectively, while reducing racial and other biases. The research was based upon a large number of studies conducted previously involving biographical information, including studies of scientific achievement, nursing achievement, academic performance, leadership and artistic talent. The rationale behind biographical information is that background information relative to many differing areas of importance in predicting human behavior can be explored in a non-threatening, efficient, and easily analyzed manner. This information is not usually found in the more traditional approaches.

The results of these studies have indicated that biographical information can successfully predict a very wide range of criteria. In addition, studies within academic settings have revealed that biographical information can validly predict academic achievement and creativity and, on interracial samples, has not exhibited the usual degree of racial bias found in many of the more traditional measures, e.g., achievement tests and I. Q. scores.

The past research has not focused directly upon the selection of those students who are most likely to benefit from exposure to the unique educational experiences offered in such specialized settings as the Governor's School and the Leadership School in North Carolina. Since funds for education--particularly for such specialized schools--are limited, extra care must be taken to ensure that the maximum benefit is obtained. Programs for the gifted and the talented are often of low priority for most school systems. Since these alternatives are available, their impact should be maintained at as high a level as possible.

The principal objectives of this research project, then, were:

1. to improve the identification procedures in academic achievement, leadership ability, and creativity in art and music in the State of North Carolina; and
2. to further examine the characteristics of biographical data in regard to reducing racial and other biases in the selection of gifted students for specialized training.

The sample of North Carolina students was taken principally from the four schools or school systems described below. The North Carolina Department of Public Instruction was responsible for the selection of the students and the administration of the instruments.

1. The Leadership School--a five-week session held during the summer at Mars Hill College. The leadership laboratory concentrated on the identification and analysis of specific problems facing youth today.

They may be human relations, environmental protection, student unrest, or a better use of leisure time. Following identification and analysis of such concerns, emphasis was placed on developing programs and activities to involve students, teachers, and others in the community in specific approaches to resolving them. The fundamental approach included independent study, open discussions, interviews, visits, group activities, local and outside consultants, audio-visual materials, students assuming the role of the teacher, and self-evaluation as a dynamic means of positive growth. At all times, emphasis was placed on transplanting new perceptions, plans for action, and newly learned ways of behaving in school and community programs during the participants' remaining year(s) in high school and in the days beyond high school. Developing skills in decision-making as well as awareness of self and others were emphasized throughout the program. Management techniques appertaining to leadership comprised a portion of the study. All participants were expected to develop an individual project to be implemented during the coming school year under local faculty supervision. Students who attended in 1972 and 1973 were participants in the project.

2. The Governor's School of North Carolina--a seven-week summer program for selected students from North Carolina secondary schools held on the campus of Salem College in Winston-Salem. The School provides a variety of unique and distinctive educational experiences for selected students, and, in the process, serves as a model in action, helping teachers and administrators throughout the state provide appropriate preparation for superior students within the local school systems. The curriculum emphasizes theory, especially 20th Century theory, and imaginative or inventive extrapolation into far ranging fields. The attempt is made to give the students an inspirational and curiosity-whetting peek into the latest accomplishments, problems, and theories in the various fields of the arts and sciences.

   The student spends approximately two-thirds of the day concentrating on his area of special interest--Art, Dance, Drama, English, French, Mathematics, Music (choral and instrumental), Natural Science, or Social Science. The rest of the time is spent in an epistemological study of the interrelatedness of all knowledge and other philosophies, and in personal and social development as a gifted and talented student. The 1973 student body took part in the project.

3. Fayetteville City Schools--chosen as a control school system for the study. Fayetteville is in a high-growth area which includes Ft. Bragg. There is a black university and a white Methodist college in the area. So, with these influences, and the military influx, this is a fairly cosmopolitan area.

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4. Moore County Schools--this school system was also chosen as a control group for the study. It is a rural school system, with a greater concentration of low-income blacks. There are some extremely wealthy individuals in this area, but many students typically come from lower-income families.

In addition to the students selected from these four schools or school systems, other students included in the sample were nominated by teachers in various North Carolina communities as having exceptional ability in the areas of Art and Music.

Review of Biographical Studies

In the first study of North Carolina students (IBRIC, 1968), a 300-item multiple-choice BI was validated on approximately 11,000 ninth and twelfth grade students. The results indicated that the Academic Performance score was consistently more valid (cross-validities in the .60's) in predicting academic performance criteria than any of the other twenty-four intelligence test and achievement measure scores included in the study. Equally important, the Academic Performance score did not discriminate in terms of race, while the conventional talent measures had the usual pattern of racial discrimination which has characterized past approaches to the identification of talent. The Creativity score, which also proved to be independent of race, was based on the responses of thousands of scientists and engineers and had a pattern of low to moderate relationship with conventional measures of talent and criteria of academic achievement.

The second study (Ellison, James, Fox, and Taylor, 1970) further analyzed these data to: (1) develop separate BI scoring procedures to predict academic performance for blacks and whites; (2) investigate the performance of blacks and whites in integrated schools; and (3) ascertain the effects of family income on test and criterion performance. The results demonstrated that separate BI scoring procedures developed for blacks significantly improved the prediction of academic performance (cross-validities in the mid .60's) for blacks, although they were still less predictable than whites. However, when the BI scoring procedures developed on blacks were used to score the BI's for whites, cross-validities (.70's) generally equal to those provided by the scoring procedures developed on whites were obtained. Blacks in integrated schools generally performed the same as blacks in non-integrated schools on the BI and achievement test data, but not on academic criteria. Finally, the BI significantly predicted family income (a cross-validity of .58) and provided informative and valuable data on the biographical correlates of family income such as attitudes, self-perceptions, childhood experiences, values, vocational aspirations, etc.

The third study (Fox, 1972) found that forty-nine biographical items sampling a wide variety of content areas had alternatives which differentiated in relation to race. Correlational analyses indicated that these life history correlates of race generally had low relationships with the academic performance predictors and criteria and that family income and its correlates were consistently more highly related to the other measures than were the biographical correlates of race. The degree

of bias in biographical information selection devices was found to be largely dependent upon both the nature of the individual items within the instrument and the degree of the relationship of race to the performance criteria to be predicted. With careful item evaluation and selection, forms could be assembled such that empirical scoring procedures would not correlate with race. Further, to the extent that thorough criterion development would result in performance measures which do not discriminate in terms of race, empirical prediction systems would also not correlate with race.

The fourth study (Ellison and Fox, 1973) was undertaken to investigate the effectiveness of various measures, including biographical information, achievement test scores, intelligence measures, vocational courses, etc., in identifying dropouts and reducing attrition. The objective was to find an early identification system which was highly accurate in identifying the potential dropout.

The results indicated that a combination of variables from biographical information, academic performance measures, etc., is important to the early identification of potential dropouts. The data obtained from the effects of vocational courses indicated that some form of academic success is a crucial variable in reducing attrition. Further, the information from the biographical correlates of attrition suggested other possible remedies, such as trying to involve parents in school activities, providing opportunities for students to become more involved in school activities, and, whenever possible, providing opportunities for growth and self-esteem so that the academic situations will be more tolerable and enjoyable rather than something to be avoided.

In a different geographic area, Walker (1973) used the same biographical instrument in an attempt to differentiate delinquents and potential delinquents from a random sample of students. Striking results were obtained when the key previously constructed to predict attrition was applied to these data. A correlation of .69 was obtained using this dropout key to separate the delinquent sample from the random student sample. These results offer very persuasive evidence that the key has a great deal of generality as well as potential utility in identifying students who need additional attention and support from the school system.

Another study of particular relevance to the current endeavor was completed by Ellison, James, Fox, and Taylor (1971). The goals of the study were: (1) to investigate the relationships of artistic performance measures through correlations among multiple criteria of artistic success; (2) to investigate the validity of a Biographical Inventory, which contained an exploratory section of climate items, in predicting artistic performance within and across the major art areas of music, visual arts, dance and theater; (3) to compare the predictive effectiveness of the empirically constructed BI and climate keys with that of an a priori academic BI key, a scientific and engineering creativity BI key, and standardized academic achievement tests; and (4) to evaluate the effectiveness of the empirically developed BI and climate keys in differentiating between art and non-art students.

The sample of 1033 students was drawn from four schools in different geographic locations. Two of the schools were local high schools selected on the basis of their art programs and extra-curricular art offerings; a third school was a public experimental school for superior students in the

arts and sciences; the fourth school was a private college preparatory academy which offers exceptional training in the arts.

The cross validities for the BI keys were in the .40's for teacher ratings, in the .50's for some of the separate checklist items, and generally in the .50's for criterion composites based on combinations of ratings and number of awards received (standardized by art area). The a priori BI key constructed to predict academic achievement was extremely predictive of academic GPA (.67), and was also valid for a number of the art performance criteria which generally had an underlying motivation construct. The IBRIC Creativity key constructed on scientists and engineers had some significant validities with performance criteria in the arts, thus indicating some common biographical characteristics underlying performance both in the arts and in the scientific and engineering areas.

Scoring keys constructed on the newly developed, exploratory climate items were shown to be related to artistic performance, although the cross validities for the climate data were somewhat lower than those obtained from the biographical data. An examination of the validities for the traditional standardized academic achievement tests demonstrated that these were generally not predictive of performance in the arts. Finally, analysis demonstrated that the BI was highly successful in differentiating art and non-art students as an average cross validity of .67 was obtained. However, this group-differentiating key was generally not as effective for predicting performance within the arts as were the keys specifically developed against the performance criteria.

All of the studies cited used a biographical form somewhat different from Form R which was used in the present study. However, very early during this study an opportunity arose to evaluate Form R in the Pennsylvania Governor's School which has needs similar to those of the Leadership and Governor's Schools in North Carolina. In Pennsylvania, Form R was administered to students during the selection process. Since at that time a leadership score was not available from previous studies or the current study (as the data had not yet been analyzed), it was decided to provide the Governor's School with a construct key for predicting leadership. Some researchers advocate this as a superior way to construct keys, inasmuch as the key has supposedly greater theoretical implications since it is not constructed on criteria which can result in unstable keys or keys which are not highly useful from a theoretical viewpoint. Thus, utilizing the Pennsylvania data, a number of items were selected from the inventory and defined as indicating high leadership. These were items dealing with how many offices had been held, whether their peers regarded them as leaders, etc. Using these core items as an a priori score, a much longer empirical key was constructed based on item-test correlation. The key resulting from this construction process was applied to the present study and is therefore labeled as the IBRIC Leadership Key. Unfortunately, no data has yet been obtained from the Pennsylvania study so the present study provided the first opportunity to evaluate the Leadership Key.

The past record of successes indicates that the biographical approach is powerful and could probably be adapted to deal with a variety of problems facing the educational community. The Leadership School and the Governor's School are important educational alternatives provided for the students of the

state. Any additional information concerning the characteristics of the students who attend these schools and a subsequent imporvement of the selection process would have important implications for these special schools and for broader talent identification and development procedures as well.

PROCEDURE

This chapter will present a description of the sample studied, the instruments used, the resulting variables, and a description of the design and data analysis procedures.

Description of the Sample

Data were collected on 1086 eleventh and twelfth grade students, including students nominated by teachers for musical and artistic ability. The sample was primarily drawn from four North Carolina schools: the Leadership School (n=180); the Governor's School (n=370); Fayetteville City Schools; and Moore County Schools. The latter two school systems provided the control group (n=421). In addition, 115 students from a variety of schools in North Carolina were nominated by teachers as having outstanding ability in art or music and were included in the sample. The demographic characteristics of the total sample were:

1. 46% male, 54% female;
2. 23% black, 77% white;
3. 52% 15-16 years old, 47% 17-18 years old.

Obviously, the total sample cannot be considered random as over 60 percent of the students (i.e., those from the Governor's School and the Leadership School, and the students nominated by teachers) were previously selected on perceived ability in the various talent areas. To the extent that these constitute outstanding students, their addition to the control sample would be expected to increase the variability of the total sample, at least on the underlying criterion dimensions and potentially on the predictors as well. If this were the case, then the correlations would be increased by the rectangular nature of the distribution. This in no way represents a limitation of the study; rather, the study was designed to determine the extent to which the predictors could separate the various kinds of criterion groups. This topic will be treated more extensively later in this report.

Description of the Instruments

Form R of the Biographical Inventory (Appendix D) was used to collect life history information for predicting academic achievement, leadership ability, and creativity in art and music. The biographical items originated from a variety of successful studies conducted by IBRIC in other settings, including studies of scientists and engineers (Taylor, Ellison, and Tucker, 1964; Ellison, James, and Carron, 1968), nurses (Ellison, James, Fox, and Taylor, 1969), college students (IBRIC, 1968), and particularly the study of artistic talent mentioned previously (Ellison, James, Fox, and Taylor, 1971).

Form R is a composite instrument made up of 300 multiple-choice items in which an individual describes himself and his background. The rationale in using such an instrument is very simple--that past behavior, experiences, and self-descriptions can be used as indicators of future performance. The items include a wide variety of questions about past activities, experiences, sources of derived satisfaction and dissatisfaction, academic experiences,

attitudes, and interests, value preferences, and self-evaluations. Scoring of the inventory is a process of correctly reading one's life history in terms of the degree of relevance for the particular performance criterion to be predicted.

Form R is printed in a reusable booklet--the responses are marked on a separate answer sheet. Instructions for completing the BI are printed on the inside of the front cover and instructions for filling out the answer sheet are printed on both the answer sheet and in the booklet. Form R can be completed during a school period, or can be taker home and returned. Most students take a complete 300 item BI such as Form R in approximately 1 1/2 to 2 hours. The BI is untimed, and the subjects were given sufficient time to complete it. In addition to the BI, a demographic form was used which yielded the following information: the student's sex, race; grade level; scaled grade point average; a rating of the student's family income; and the type of community in which the student lived. This form was completed by the student's counselor (Appendix E).

All data were collected by the North Carolina State Department of Public Instruction's Division for Exceptional Children, Gifted and Talented Section. The answer sheets for the BI and computer cards containing coded information from the demographic form were then sent to IBRIC for analysis.

Description of the Variables

Eighteen predictor and demographic variables were analyzed to assess their interrelationships and their relationships with the academic achievement, leadership, and creativity criteria. Table 1 is a list of these variables. Variables 1-3--the criteria--and variables 4-10--the demographic variables--were taken from the demographic form. Variable 11 is the Mental Ability Score from the Otis Quick Scoring Mental Ability Test, Gamma Test (Form C). Variables 12-16 were keys built in earlier IBRIC studies to predict the named attributes and were used for scoring in the present study. Variables 17-21 were keys empirically constructed on the present sample. These keys should yield a more accurate prediction for this sample than those built from other studies on other samples.

TABLE 1
LIST OF VARIABLES

Criteria:

1. GPA
2. Leadership (1=Leadership School, 0=control)
3. All Art and Music (1=nomination, 0=control)

Demographic Variables:

4. Race (1=white, 0=other)
5. Sex (1=male, 2=female)
6. Economic Status (3=above average, 2=average, 1=below average)
7. Grade Level (1=11th, 2=12th, blank=all others)
8. Rural Community (1=yes, 0=no)
9. Suburban Community (1=yes, 0=no)
10. Urban Community (1=yes, 0=no)

Table 1 (continued)

A Priori Scores:

11. Otis Mental Ability Score
12. IBRIC Female GPA Key
13. IBRIC Male GPA Key
14. IBRIC Creativity Key
15. IBRIC Leadership Key
16. IBRIC Artistic Talent Key

Empirical Biographical Scores:

17. GPA Key
18. Race Key
19. Economic Status Key
20. Leadership Key
21. All Art and Music Key

The means, standard deviations, and sample sizes for each of the 21 variables on the total sample can be found in Appendix A. Similar statistics for each variable on the control, white, non-white, all art and music, leadership, and academic subsamples can be found in Appendix B.

Criteria. The definition and measurement of performance, the criterion problem in psychological literature, has been an area of considerable controversy and one in which there has been a lack of notable progress. The present study was faced with the usual issues which are inherent in any study concerned with trying to define and assess the levels of performance that are to be predicted. What standards are effective indicators of high levels of performance, and are these designations appropriate for the development of predictors which can then be used as indicators of the desired standards of performance? As stated earlier, the goals of this study were concerned with developing effective predictors of achievement in academic performance, leadership, and artistic talent which would simplify selection procedures and be essentially free of racial bias. The academic achievement area was one in which the readily available criterion of grade point average was appropriate as it has been studied very extensively.

In view of the complexity of the leadership and artistic areas and the practical constraints on the study which did not permit the development of extensive indices of achievement in these areas, it was decided to rely upon the already developed procedures inherent in the selection of students for these areas. In both the Leadership School and the Governor's School, extensive review and screening processes had been developed, and the study relied upon these measures by using students who had been selected in the past to attend these schools to designate high levels of achievement in their respective areas. Selection into either the Leadership School or the Governor's School, of course, assumed that these students were higher on an underlying dimension of leadership or artistic talent even though the level of measurement of these criteria only consisted of binary variables, that is, selected into these institutions versus not selected.

If it is assumed for the sake of discussion that the screening and evaluation procedures for selecting students for these special training opportunities were ineffective and, in effect, represented biases and random

error, then the criteria would not be predictable nor would the measures developed to predict them generalize and have meaningful relationships with other situations and measures. On the other hand, if the criteria were highly predictable, this would argue that the screening procedures were systematically consistent but not necessarily valid. The validity of these selection procedures would need to be demonstrated either through construct validity considerations or through longitudinal studies. The fact that construct measures were available as predictors which had been developed previously in other situations to identify both leadership and artistic talent offered an opportunity for evaluating the criteria used here.

Previous studies have shown that using similar kinds of nominations where subjects are coded in terms of binary classifications (selected or not selected) can result in highly satisfactory predictor studies. However, it still should be recognized that the level of criterion measurement was relatively crude, relying upon a classification of students into what were believed to be extreme groups with no differentiation among the students selected and contrasting these groups with a random sample. The specific criterion variables utilized in this study are described below and the implications of the results in regard to the criterion problem will be discussed later in this report.

Variable 1, GPA, was obtained from school records and was scaled from the standard North Carolina system as follows: 7=95 or above; 6=90 - 94; 5=85 - 89; 4=80 - 84; 3=75 - 79; 2=70 - 74; and 1=below 70. As can be seen in Appendix A, the mean of the total sample was 5.35, which indicates a grade average mean of about 89. In contrast, the mean of the control group, which can be found in Appendix B, is 4.18, equivalent to a grade average mean of about 83.

Variable 2, Leadership, indicates those students in the sample who were selected to attend the Leadership School during a five-week summer session at Mars Hill College. These students were selected on the basis of judged potential to become leaders in the state and the nation.

Variable 3, All Art and Music, includes those students enrolled in the Governor's School in the specialty areas of art or music, and students nominated by their teachers as having high levels of ability in art or music.

Demographic Variables. Variables 4-10 were used to establish subgroups and determine whether such subgroups scored differently across the other dimensions. Variable 4 was used to divide the total sample on the basis of race. Variable 5 established male and female subsamples. Students were separated into three economic status groups by Variable 6. Grade level samples were established by Variable 7. Variables 8, 9, and 10 were used to establish subsamples of students living in rural, suburban, and urban communities.

A Priori Scores. Variable 11, the Otis Mental Ability Score for each student, was derived from the Otis Quick Scoring Mental Ability Test, Gamma Test (Form C). The mean of the total sample on this variable was 55.12. Variables 12-16 are a priori biographical keys. Variables 12 and 13 (the IBRIC Female and Male GPA Keys) were constructed to predict grade point average for high school and college students. Validity coefficients in the mid .60's have been reported for these two keys (IBRIC, 1968). The IBRIC Creativity Key (Variable 14) was developed across a number of studies of adult scientists and engineers (Taylor, Ellison, and Tucker, 1964) and was also used in the

original North Carolina study (IBRIC, 1968). The IBRIC Leadership Key (Variable 15) was a constructed measure designed to predict leadership ability for students from the Pennsylvania Governor's School for the Arts. The IBRIC Artistic Talent Key (Variable 16) was constructed to predict student performance within and across the major art areas of music, visual arts, dance, and theater. It was developed on student populations from four schools in different geographical locations (Ellison, James, Fox, and Taylor, 1971).

Empirical Biographical Keys. Variables 17-21 were keys empirically constructed on the present sample to predict GPA, race, economic status, leadership, and art and music.

Data Analysis and Processing

As a result of the extensive experience of IBRIC personnel in analyzing biographical questionnaire data, a highly sophisticated program has been developed which extensively defines the relationships between biographical data and the measures held up as criteria. In the present study, each selected criterion measure (e.g., academic achievement) was analyzed in terms of the relationship that existed between that criterion and each alternative of each biographical question. The percentage of individuals choosing each item alternative, the actual number of students responding to each alternative, and the biserial and point biserial correlations of each item alternative with each criterion were computed, together with the eta coefficient for each item and criterion.

This program was designed with considerable flexibility, allowing for economy in processing the data effectively as a large number of criteria and samples can be analyzed as one problem. After the relationships between the item alternatives and the criteria are computed, they are examined to see if they meet or exceed a pre-established level of significance. Those item alternatives that have significant relationships are then weighted plus one (+1) or minus one (-1), depending upon the sign of the correlation. A key for scoring or predicting each criterion is developed via this procedure. The scoring keys are then applied to the responses of each student in an independent sample to obtain a predicted score for each criterion from his biographical data. These scores across all participating students are then correlated with their criterion scores to determine the cross-validities of the empirically constructed scoring keys.

For purposes of key generation and cross-validation, the overall North Carolina sample was divided into two samples--those with odd identification numbers and those with even identification numbers. Since identification numbers were assigned randomly within schools, this split was essentially the same as a random selection of students to samples within schools.

With the samples identified, it was then possible to direct the computer program to develop keys against each of the criterion measures on the odd sample and score the even sample. Keys were also constructed on the even sample and used to score the odd sample. In this way, the cross validity of the keys could be assessed for all criteria.

This type of analysis resulted in what is called a double cross-validation design with keys built on the odd half used to score the responses of subjects in the even half, and keys built on the even half used to score the responses

of subjects in the odd half. The reason for this method of analysis was that the use of the same group for both the development of the scoring weights and the application of these weights always produces results which are spuriously high and thus fails to give an accurate estimate of the effectiveness of the scoring procedures. Cross-validation of the scoring keys on a separate sample provides an estimate of the effectiveness of the procedure on another, independent group.

In the construction of a scoring key to predict an outside criterion through the analysis of biographical data, the emphasis is usually placed on obtaining a very high cross-validity coefficient for the key in predicting that criterion on an independent sample. This, in turn, is a function of at least four parameters:

1. number of items;
2. the magnitude of the correlations of individual item alternatives with the criterion;
3. the expected stability of the item alternative-criterion correlations which, in turn, varies with the significance level; and
4. item heterogeneity.

In building the empirical BI keys, different cutoff levels for item retention were used, dependent upon criterion structure. Since GPA was continuous (ranging from 1 to 7), a biserial correlation of at least plus or minus .25 as well as 5% or more of the sample choosing the alternative was required for an item alternative to be keyed. Leadership and All Art and Music, however, were dichotomous variables, e.g., a student is either attending the Leadership School or he is not; consequently, a point biserial correlation level of at least .18 and 5% or more of the sample responding to the alternative were the cutoff levels used for these criteria.

Empirical keys were also constructed for Economic Status and Race with correlation levels of .25 and .18 respectively and at least 5% of the sample responding to the item alternative used as the cutoff levels. Each of these cutoff levels ensured that any item selected would be significant beyond the .01 level of confidence. These significance levels were selected as those which would best approach the desired balance across the item selection parameters. That is, a sufficient number of items would be scored, item-criterion correlations would be selected which would be reliable, and sufficient numbers of items would be selected to ensure that some item heterogeneity would also be obtained.

After all keys had been generated and the scoring was completed, correlation matrices including all selected variables and key scores were computed for each of the samples selected for analysis. Each of these matrices was based on students in the appropriate samples from both the odd and even validation groups to obtain the most stable estimates of the correlations and cross-validities. All of these procedures were carried out in one pass through the item analysis program.

RESULTS

This chapter will present the most important correlations resulting from the data analysis procedures outlined above and will discuss each of the criteria and demographic variables relative to all other variables, with special emphasis on the biographical keys. A complete picture of the inter-relationships can be obtained by examining the total sample correlation matrix (Appendix C).

GPA--Variable 1

Table 2 presents the variables most highly correlated with GPA. The most striking characteristic of this table is the number of variables with substantial validities. Variable 11, the Otis Mental Ability Score, had a correlation of .71, an unusually high relationship for a test score in predicting GPA. As mentioned previously, the nature of the sample undoubtedly had an influence on all of the predictors resulting in these high validity coefficients.

Variables 12, 13 and 16 were the a priori keys from previous studies and also had substantial validities, with the two GPA keys being more valid than the Artistic Talent key. The outstanding feature of the relationship given in Table 2 was the magnitude of the a priori IBRIC GPA keys. That these keys have remained this effective for this length of time is an indication of their stability.

Variable 17, the GPA key, had a validity coefficient of .77, a remarkably high validity. This key was empirically constructed and cross-validated in this study and was the most effective predictor of GPA. The Economic Status key correlation indicates, as had been expected, that the students who came from families with below average incomes had lower GPA's.

TABLE 2
VALIDITY COEFFICIENTS WITH GPA

VARIABLE	GPA
11. Otis Mental Ability Score	.71
12. IBRIC Female GPA Key	.73
13. IBRIC Male GPA Key	.72
16. IBRIC Artistic Talent Key	.61
17. GPA Key	.77
19. Economic Status Key	.61
20. Leadership Key	.68
21. All Art and Music Key	.68

Variables 20 and 21 were the empirical keys constructed and cross-validated in this study to predict leadership and artistic talent. They too had substantial relationships with the GPA criterion. The relationships of all of the keys in this sample indicate that high academic performance was an important factor in the selection of students as well as in the various predictors. In other words, with this sample, academic performance was a dominating consideration which substantially influenced all of the other variables--criteria and predictors.

Leadership--Variable 2

The correlations of other variables with the Leadership criterion were also quite substantial, as shown in Table 3. The highest correlation was found with the Leadership Key--the empirical key built in this study.

TABLE 3
VALIDITY COEFFICIENTS WITH LEADERSHIP

VARIABLE	LEADERSHIP
1. GPA	.52
11. Otis Mental Ability Score	.45
12. IBRIC Female GPA Key	.50
13. IBRIC Male GPA Key	.50
15. IBRIC Leadership Key	.58
16. IBRIC Artistic Talent Key	.52
17. GPA Key	.66
20. Leadership Key	.71
21. All Art and Music Key	.65

The magnitude of the IBRIC Leadership Key and the empirical Leadership Key would indicate that this important variable--Leadership--can be predicted with a great deal of accuracy. If potential leaders can be identified, special experiences can be provided for them to develop and realize this potential.

This IBRIC Leadership Key, the construct validation key constructed on an earlier application of Form R, had a correlation of .58 indicating that the values theoretically defined as being important for leadership were also substantially related to leadership as defined in North Carolina. However, the considerably more substantial validity (.71) of the empirical key constructed on these data indicates that the empirical key construction procedure yielded more valid results. Again, as in the previous table, there is evidence of the overriding importance of academic performance in shaping the relationships among these variables. However, it can also be noted that the GPA measure and the Otis Mental Ability Score were noticeably less valid than the two leadership key scores.

All Art and Music--Variable 3

As shown in Table 4, the empirical key designed to predict All Art and Music correlated .76 with this criterion variable. The a priori IBRIC Artistic Talent Key had the next highest relationship, correlating .65 with this criterion. Either one of these keys could provide an extremely valid predictive instrument to select students with artistic or musical talent. The correlation with the Economic Status Key indicates that more of the art and music students came from families of above average economic status. If the family cannot provide for the necessities, then the student probably will not be able to indulge in what may be considered a luxury. This was reflected in the correlation with Suburban Community, another indication of the economic status of the family.

TABLE 4
VALIDITY COEFFICIENTS WITH ALL ART AND MUSIC

VARIABLE	ALL ART AND MUSIC
1. GPA	.51
6. Economic Status	.28
9. Suburban Community	.62
11. Otis Mental Ability Score	.58
16. IBRIC Artistic Talent Key	.65
17. GPA Key	.62
19. Economic Status Key	.60
20. Leadership Key	.60
21. All Art and Music Key	.76

The economic status criterion had a correlation of .28 with this artistic talent criterion measure. However, as mentioned previously, the economic status key which defined the biographical correlates of high and low income status had a considerably higher relationship (.60) indicating the pervasive importance of low income status in terms of how such a situation is defined and accepted by the student and reported through responses to the biographical questionnaire.

As in Table 3, the GPA measure and the intelligence score had somewhat lower validities (.51 and .58 respectively) than the artistic keys which were as high as .76.

Race--Variable 4

Table 5 presents the variables with the most interesting correlations with demographic Variable 4--Race. These correlations were of relatively low magnitude. The correlation of Economic Status with Race indicates that the white students in the sample tended to come from families with above average incomes and that the non-white students tended to come from below average income families. The correlation of the Otis Mental Ability Score with Race shows a trend for the white students to have higher mental ability scores than the non-whites, a finding which was expected in view of previous studies. In contrast, the correlation of Race with each of the BI keys (excluding Race) was noticeably lower than the Race-Otis Mental Ability Score correlation (e.g., the highest BI key-Race correlation was .24 and the average BI-Race correlation was .16) indicating that the BI keys had much lower relationships and thereby would discriminate much less against minorities.

TABLE 5
CORRELATION COEFFICIENTS WITH RACE

VARIABLE	RACE
6. Economic Status	.32
11. Otis Mental Ability Score	.35

TABLE 5 (continued)

17.	GPA Key	.17
19.	Economic Status Key	.23
20.	Leadership Key	.11
21.	All Art and Music Key	.24

Data on this table also support a finding that has been reported in a previous study of North Carolina students, namely, that although the economic status key, as illustrated in Table 4, in general, is a much more viable predictor than the original economic status criterion measure, it is not more substantially related to race. These relationships suggest that the effects of economic deprivation are to some extent counteracted or overcome by ethnic pride or other aspects of ethnic culture so that the correlates of economic status were in fact not as highly associated with race as was the original criterion measure. Another plausible explanation is that the biographical items are not written to discriminate along dimensions such as race.

Sex--Variable 5

The highest correlation of any variable with Sex was -.21. That correlation was with the IBRIC Creativity Key. None of the correlations are high, which would indicate that Sex was not an important dimension in the study of biographical attributes. This finding is consistent with the literature.

Economic Status--Variable 6

The highest correlations of other variables with Economic Status can be found in Table 6. These correlations are again of low magnitude.

TABLE 6
CORRELATION COEFFICIENTS WITH ECONOMIC STATUS

	VARIABLE	ECONOMIC STATUS
4.	Race	.32
11.	Otis Mental Ability Score	.31
19.	Economic Status Key	.38
21.	All Art and Music Key	.32

The Economic Status Key correlated highest with this demographic variable, but the value of the correlation was low. Otherwise, the findings were expected--whites were from higher income families; students from higher income families scored higher on the Otis and displayed more artistic and musical talent.

Grade Level--Variable 7

There were only two variables that correlated to any degree with grade level. GPA has a factor of attrition. Those students who had lower grade point averages, who did not do well in school, were evidently the students

who were most likely to drop out of school. So, to find that students in a higher grade level tend to have a higher GPA on the average was not an unexpected finding. Similarly, to find that students in a higher grade level tended to have higher mental ability scores was also not surprising. These are interesting findings since they tend to substantiate other research, but their utility in this study is somewhat limited.

TABLE 7
CORRELATION COEFFICIENTS WITH GRADE LEVEL

VARIABLE	GRADE LEVEL
1. GPA	.31
11. Otis Mental Ability Score	.31

Rural Community--Variable 8

Table 8 presents the variables with the highest correlations with the demographic variable, Rural Community. No empirical keys were developed to predict location of home. These correlations were presented to get a better picture of the student sample in this study. The correlations of this variable with Urban and Suburban Community were artifacts; they are a function of how the variables were coded and thus are not really interpretable in the normal sense.

TABLE 8
CORRELATION COEFFICIENTS WITH RURAL COMMUNITY

VARIABLE	RURAL COMMUNITY
3. All Art and Music	-.43
9. Suburban Community	-.52
10. Urban Community	-.59
19. Economic Status Key	-.31

The other correlations indicate that students who lived in rural communities tended not to be identified as having artistic or musical talent and they generally came from families with below average economic status. A number of factors may be involved with the finding that these students were not identified as having artistic or musical talent. Perhaps the rural schools did not have extensive programs in these areas. Rural students may more often have chores that they have to do, making extracurricular activities more difficult. This is compounded, of course, by the fact that they tend to come from families with below average incomes. These correlations obviously do not indicate that rural students do not have artistic or musical talent, but that other mitigating factors are undoubtedly involved.

Suburban Community--Variable 9

Students from Suburban Communities tended to be identified as having a great deal of artistic or musical talent. Perhaps their teachers were more

aware of this area and therefore tend to observe this talent more readily. The magnitude of the correlation would indicate that this subsample would be the source of most of the students nominated as having special artistic and musical talent. This is compounded somewhat by the fact that these students tended to come from more affluent homes. There was also a tendency for more of the leaders to come from suburbia.

TABLE 9
CORRELATION COEFFICIENTS WITH SUBURBAN COMMUNITY

VARIABLE	SUBURBAN COMMUNITY
2. Leadership	.33
3. All Art and Music	.62
8. Rural Community	-.52
10. Urban Community	-.39
16. IBRIC Artistic Talent Key	.34
19. Economic Status Key	.36
21. All Art and Music Key	.38

Urban Community--Variable 10

There are only two variables that correlate with Urban Community to any extent. They are Suburban and Rural Community. As was pointed out, this was an artifact of how the variables were coded. Since this variable had no other relationship of any consequence with the other variables studied, these findings indicate that the urban students were not characterized by any distinguishing characteristics in terms of the variables studied.

Otis Mental Ability Score--Variable 11

The mental ability score derived from the Otis Quick Scoring Test had high correlations with many of the variables under investigation in this project.

TABLE 10
CORRELATION COEFFICIENTS WITH THE OTIS MENTAL ABILITY SCORE

VARIABLE	OTIS MENTAL ABILITY SCORE
1. GPA	.71
2. Leadership	.45
3. All Art and Music	.58
12. IBRIC Female GPA key	.64
13. IBRIC Male GPA Key	.60
16. IBRIC Artistic Talent Key	.60
17. GPA Key	.72
19. Economic Status Key	.66
20. Leadership Key	.63
21. All Art and Music Key	.69

Although the magnitude of the correlations was generally expected, they still have interesting implications. Obviously, the student with the higher mental ability score would be expected to have a better GPA and could be expected to have more interest in art and music, since he would have more time for extracurricular activities and he would be expected to be from a higher income family. The correlation with the Leadership criterion was somewhat lower but still indicated that an above average intelligence score was important for being recognized as a leader.

Not so obvious are the relatively high relationships which were obtained between the biographical keys constructed for various purposes and the intelligence score. Although this has been reported in a number of other studies presented in the introductory chapter, that questions about life history experiences, accomplishments, interests, etc., can be empirically keyed such that correlations in the .60's and even in the .70's can be obtained between life history data and intelligence test scores is still striking. Although the magnitude of the sample, correlations of approximately this magnitude have also been obtained on a completely random sample indicating that biographical data can have a substantial relationship to conventional intelligence test scores. However, life history data, as in the ALPHA instruments, consistently has had a lower relationship with race.

Comparisons of Control Sample with Talent Samples

In Table 11, the sample sizes, means, and standard deviations for the special talent samples are contrasted with the control sample which was intended to be representative. At the top of Table 11 the comparison of the control sample and the academic sample is presented in terms of mean scores obtained on the biographical key constructed to predict GPA. The academic sample was made up of students who were attending the Governor's School in one of the various academic areas. The results indicated a very marked difference between the mean scores of the control and academic samples. This substantial difference was reflected in the correlations presented earlier for the GPA key with the GPA criterion. For selection purposes, students being considered for the Governor's School should obtain substantial BI key scores. For the data used in the present study, a cutoff score of 107 would select approximately the top 25% of the control sample but would eliminate only about 2% of the academic sample. The mean key score for the academic sample was 142 so that scores in this range should be generally considered for admittance to the Governor's School on the basis of academic performance. Similar interpretations would follow for the contrasts of the control and leadership sample where, again, a substantial difference was obtained for the mean scores of the two groups on the leadership key. Finally, in the third portion of Table 11, the mean scores are presented which contrast the control students with the art and music students. Again, there was a marked difference between the mean scores of the control sample and the students designated as having high levels of achievement in art and music.

TABLE 11
SAMPLE SIZES, MEANS, AND STANDARD DEVIATIONS OF TALENT AND CONTROL SAMPLES ON APPROPRIATE BI KEYS

SAMPLES	N	MEAN	S.D.
		GPA Key	
Control	421	89.7482	25.7141
Academic	211	142.3270	16.9894
		LEADERSHIP KEY	
Control	421	102.6200	24.3192
Leadership	180	153.5944	20.1906
		ALL ART AND MUSIC KEY	
Control	421	95.8955	21.1435
All Art and Music	274	143.3978	17.9415

DISCUSSION

This section is devoted to an examination of the results and their implications. In addition, biographical correlates of the three principal criteria of this study, academic achievement, leadership, and artistic and musical talent, will be summarized.

Predicting the Criteria

The biographical approach has again shown its effectiveness in predicting a variety of criteria. Validity coefficients of .77, .71, and .76 were obtained in predicting the criteria of GPA, Leadership, and All Art and Music. These validities are extremely high and indicate that non-intellective indices in the form of biographical information can be used to select those students who have the most potential to be academically capable, to be leaders, and to be artists or musicians.

These extremely high validity coefficients are tempered somewhat by the fact that these empirical keys were highly interrelated themselves. This is an indication that the characteristics that were important in achieving a high grade point average were also important in a leader or in an artistically or musically talented person as defined in the present study. The criteria had a certain degree of interdependence as a function of the nature of the individuals selected and designated as the criterion groups. The question may be legitimately asked whether individuals who performed in leadership roles in other settings would necessarily be of such high levels of academic ability or measured intelligence as those designated as leaders in the present study. The evidence indicates that, as a group, those selected for the leadership sample were above average in academic ability even though this was not a criterion. The selection of such students for special leadership training opportunities is not necessarily in question; however, other students, with somewhat lesser mental ability, could also be considered for advanced leadership training so that they too could function more effectively as leaders in roles in addition to the students typically designated for attendance at the school.

The same general question can be raised about the art and music students. All art and music students selected for the Governor's School are also of higher levels of general academic ability. Since academic ability is a prerequisite for admittance, students who have high degrees of artistic ability but do not have the necessary intellectual background or development are not being considered. Undoubtedly, many lower income students with average or below average IQ's could and, in fact, will later achieve some degree of eminence in artistic areas. Yet, they are typically excluded when a high intelligence score is a prerequisite. The results obtained in the present study reflected the current status of selection procedures. Therefore, while they will contribute to more efficient selection with less racial bias, they do tend to support the procedures already in operation which do not consider individuals who have artistic talent but have not also demonstrated high intellectual ability.

While the interrelatedness among criteria and keys is a matter of concern, that concern is eased to a great extent by the validity coefficients that were obtained with the a priori biographical keys. The IBRIC Artistic Talent key was developed on students across schools in three different states. The empirical validities obtained in that study were in the .40's and .50's within samples of art students when the degree of artistic success was assessed in various ways. The a priori key had a validity of .65 in this study in separating a control sample from a highly selected sample. The present study has a full range of students, and a greater range of students with artistic talent, so the later validity coefficient is more representative of the predictive power of the instrument for use in selecting students for the Governor's School. Considering the validity coefficients of .76 and .65 found in this study for the empirical and the a priori keys, the conclusion is easily reached that Form R of the Biographical Inventory can be used in identifying and isolating those students with more artistic and musical talent than others.

The a priori IBRIC Leadership key had a validity coefficient of .58. The empirical Leadership key had a validity of .71. The a priori Leadership key was not developed on actual leadership criterion data, but from a theoretical position. Comparisons of the two keys in terms of similarities and discrepancies could give added light to the study of this important variable. Again, the magnitude of the validity coefficient would indicate that biographical information can be used in identifying the leader in the population, thus making it possible to provide specific training and experiences to bring out that ability.

The validity coefficients found for the a priori IBRIC Female GPA key and the a priori IBRIC Male GPA key were .73 and .72. These compare very favorably with the empirical validity of .77. The IBRIC GPA keys had validities in the original study in the mid sixties. This increase in validity was unexpected, since some shrinkage is the normal expectancy for empirical keys. The increase must be explained in terms of the differences in the samples. The unusually heavy sample composition of talented individuals undoubtedly contributed to obtaining somewhat higher validities in the present study. While there tended to be an increase in the validity of the BI keys, there was an even more marked increase in the validity of the Otis Mental Ability Score. The high criterion samples were largely selected on the basis of academic performance or intelligence scores; consequently, sample selection resulted in a marked increase in the evident validity of the Otis Mental Ability Score. The use of highly similar measures as part of the selection procedures would tend to produce a marked increase in the validity of the Otis Mental Ability Score for this sample. The validities found for mental ability tests in predicting academic criteria have typically ranged from the .40's into the .60's and similar results would logically be expected in future studies where students have not been selected on the basis of academic performance or intelligence test scores.

The validity coefficients found for the a priori keys indicate that these keys are extremely reliable across time and different samples. The biographical characteristics that are important for the identification of talented individuals remain the same over time. If these characteristics were to change drastically from one year or sample to the next, the validity coefficients of the a priori keys would shrink considerably, because the characteristics that could be used to predict the talented student in one situation would be different in the next.

Family Income

The Economic Status measure resulted in some disturbing findings in this study, as it has in the past. If a family is existing on a near subsistence level, music and art may be either unobtainable or viewed as unimportant. To the poor, eating and having a comfortable place to sleep are much more important than music. Ellison, James, Fox, and Taylor (1970) found that biographical correlates of family income revealed a broad pattern of deprivation, including lower self-concepts, lower academic achievement, deprived patterns of activities and interests, and restricted childhood experiences.

Hernandez (1969) listed many handicaps that accrue from the student himself, from the family of the student, and from the teachers and the school. The student himself contributes a poor self-image, a lack of motivation, and a state of apathy. The parents contribute a lack of understanding of what the environment of the student is really like, and a lack of preparation for the demands that the school will make on him. The needs of the family and the demands that the family places on the student are quite different from the ones of the educational system. The teachers and the schools contribute an absence of awareness of the handicaps under which the student must function, a lack of knowledge of the culture and the environment in which the student lives, and a lack of communication with the family regarding the expectations of the school structure.

In the present study, a student from a rural community tended to come from a below average income family and tended to be seen as not having artistic and musical talent. In contrast, the student from the suburban community, which is considerably more affluent, was frequently selected as having artistic and musical talent and having leadership qualities.

The expectations that people from lower-income families have and the expectations that teachers and school systems have of lower-income students result partly in the all pervasive effect of being poor. The minority group student and the student from the lower-income family are more often counseled into technical-vocational courses, instead of college preparatory. They are seldom encouraged to take advantage of the experiences that are available to them so that they can learn to cope more adequately with their environment.

If the low-income student is to have a chance to succeed and to escape from the cycle of poverty, education must play an important part. Education can provide the tools that are needed, but education must be open to the problems of the poor and must find instrumentation that can identify and isolate the more talented student, regardless of economic status. All of the biographical keys, empirical and a priori, correlated slightly less with the economic status measure than did the Otis Mental Ability Score, except for the Art and Music key (excluding the economic status key which was constructed to correlate with this measure). The biographical approach has shown in the past and in this study that it could contribute to the selection of more talented students among low income groups.

Race and Sex

Again, in this study, the Biographical Inventory has demonstrated that it is relatively free of racial discrimination. The correlations of the

various a priori and empirical biographical keys with race were quite low. In all cases the correlations of the biographical keys with race generally approximated or were slightly lower than the relationships of race with the various criterion measures. There was a somewhat higher relationship between the Otis Mental Ability Score and Race, however. This correlation (.35) was approximately what has been typically reported for mental ability scores for blacks and for whites. In numerous studies, intellectual ability tests have been reported to be highly sensitive to the effects of different cultures and economic deprivation. Similar results were found in the present study. Obviously, the use of biographical keys and less reliance on intelligence test scores would reduce the amount of discrimination inherent in any selection procedure which puts a heavy emphasis on intellectual performance and achievement.

Sex was also not a factor. Female students were identified as being leaders as readily as males. Female students were seen as being as talented artistically and musically as males. All of the correlations of the demographic variables, the a priori scores, and the empirical keys with sex were extremely low. The correlation of -.21 with the IBRIC Creativity key is the largest, and this can be explained by the fact that the IBRIC Creativity key was developed on large samples of male scientists, so it reflects male interests and attitudes.

Sex has not been a factor in biographical studies in the past. As long as the items and alternatives are written in general terms, and not aimed specifically for one or the other sex, biographical keys should remain free of sexual bias.

Biographical Correlates of Academic Performance, Leadership and Artistic Performance

Some reported self-descriptions were common across students scoring high on the GPA, Leadership, and Artistic keys. For example, students from all three groups reported scholastic success across science, math, social studies, art and English. They perceived themselves as being in the top 10% of their classes and maintain a B+ or better grade point average. They felt that attending college was very important and intend to obtain a graduate degree. They belong to five or more clubs or societies and have been elected three or more times to their student councils. These high scoring students indicated that self-expression, people, interesting work, and involvement with others are more important to them than power, money, and security.

GPA. In addition to the self-descriptions common across high scoring students, a high level of involvement, interest, and demonstrated success in academic life are descriptive of the high GPA student. They reported that they usually follow directions given by teachers but do not do much studying because it isn't necessary. "Learning to live in peace with myself and others" was chosen as one of their life goals. In common with high scorers on the Leadership key, high GPA students indicated that education was important in their homes and that their teachers considered them desirable students. The high GPA students reported that they make broad, general, but not detailed plans. This trait was also descriptive of the high artistic student.

Students with low GPA scores reported they had done only a limited amount of traveling, rarely read the first page of the newspaper, and frequently forget teacher's directions. Parental or social pressure was chosen as their main reason for attending school.

Leadership Students with high Leadership scores indicated greater than average interest in planning, organizing, directing and leading people and activities. They described themselves as leaders and indicated that learning to direct and lead others toward a goal was important to them. These students prefer to plan an activity rather than carry out plans made by others. Their interest and ability in communicating with others is indicated by their reports that they are very good at describing their thoughts and ideas, that they are not bothered when their work is interrupted by people asking advice, and that they have outstanding ability to communicate with people from other cultures and backgrounds.

Students with low Leadership scores described themselves as followers and rated their leadership ability as only about average. They reported they never spoke to groups outside of school. "About average" was selected as most descriptive of both their ability to cooperate with others and to make plans toward achieving a goal.

Art and Music. Students with high scores on this key can generally be described as having extensive experience and success in artistic areas as well as aspirations toward further success in art areas. These students reported success across music and visual and performing art areas. They have received three or more awards for such achievement. Their responses reveal that they consider themselves serious students of the arts and that they are much above average in creativity and imagination. Becoming a musician or an artist was chosen as a career goal. They further indicated that they would prefer a job which allowed them a great deal of freedom to work on their own ideas and which offered opportunities for being creative.

Low scoring students on this key reported little interest in artistic areas and little confidence in their artistic ability. They expressed greater confidence in their intellectual ability. These students chose business, engineering, agriculture, or technology as being more desirable than an art area for a full-time job. They also chose security as being more important than opportunities for creativity in a job.

The Flexibility of the Biographical Approach

The majority of the studies using the biographical approach have attempted to identify the higher ends of continua, e.g., creativity in scientists, academic achievement, artistic talent, and musical ability. This type of high level prediction has been consistent across studies. Similarly, Ellison and Fox (1973), in an earlier study of North Carolina students, were able to isolate factors that characterized those students who were most likely to drop out of school. The dropouts more often responded that they had lower grades, relatively poor attendance, no plans for college attendance, and limited participation in school activities. They more often had parents who had not completed high school. The mothers of dropouts generally did not become involved in school related activities, such as PTA.

There was little family discussion involving the student's occupational plans. The families of dropouts were found to have relatively few books in the home.

Dropouts more often indicated that they spent little or no time studying, applied themselves to only a limited extent, and had a general dislike for school. They did not involve themselves in extracurricular activities, either school related or non-school related. Dropouts did not plan to attend college, so they were enrolled more often in trade and vocational courses as opposed to college preparatory courses.

The dropout was more likely to date frequently and to spend money rather than save it. He thought of himself as generally being below average, slower than the other students, not particularly desirable as a student to his teachers, and being perceived by his teachers as not interested in school work. In addition, the dropout felt little opportunity for expressing himself in creative activity.

The contrast between the picture of the dropout and of the students talented in Academic Performance, Leadership, and Artistic and Musical Ability, as presented previously, is striking. Whether additional alternatives can be made available so that fewer students drop out of school on one hand, or more students can exhibit their abilities in art, music, or leadership on the other hand, is a heavy responsibility for parents and the educational system.

Since students can report on their backgrounds, interests, activities, etc., in such a way that highly valid predictors can be developed for a variety of criteria, to ask students to describe their classroom activities would be a natural next step. Ellison, Callner, Fox, and Taylor (1973) reported the results of a study measuring the academic climate in an elementary school. The instrument used to measure climate was the Student Activities Questionnaire (SAQ). This instrument measures academic climate across eight different areas, analyzes responses, presents scores for students which indicate how they view classroom procedures, and provides prescriptive suggestions for teachers to improve academic climate and help them relate more effectively with individual students.

The Biographical Inventory and the Student Activities Questionnaire could be combined into a single system to identify students of high potential for success as well as potential dropouts, to measure and thereby improve classroom climate, and to assist educators to provide students of whatever background with better opportunity for gaining an education and becoming full members of society.

SUMMARY AND CONCLUSIONS

The objectives of the present study were to evaluate and examine the validity of various biographical inventory scoring procedures in identifying talent for special educational opportunities in selected North Carolina institutions, namely, the Governor's School and the Leadership School. The research focused on three talent areas, high academic performance, leadership, and artistic talent, which included both art and music. The research was based on a series of studies which had indicated that biographical information could make a significant contribution to the selection of such students. The intent was to contribute to a more efficient selection process and to do so with less racial discrimination than current procedures.

The availability of scores developed in other settings to predict leadership and artistic talent permitted the study also to shed light on how current selection procedures at these special institutions were associated with other standards for assessing leadership and artistic performance. If the a priori keys developed in other studies showed substantial relationships to the criterion groups in the present study, this would not only argue that the BI can contribute to efficient selection procedures but would also substantiate procedures already in effect.

The sample was made up of a limited control sample selected from two areas in North Carolina. Various other kinds of samples were added to this control sample. These included present students from the Governor's School, students from the Leadership School both in the current and the previous year, and students nominated by high school teachers as having demonstrated high levels of achievement in art or music. To evaluate the Biographical Inventory, two strategies for criterion development were used: (1) in the case of academic performance, the student's grade point average served as a readily available, well-studied criterion measure, and (2) in the case of leadership and artistic talent, the study relied upon the selection procedures already in effect for identifying students for these schools. The question then became whether the Biographical Inventory, with both a priori and empirically developed keys, could separate out and show validity in identifying the students who had been previously selected for these institutions.

A number of other variables were also examined to increase understanding of the selection processes and the characteristics associated with admittance to these institutions. These variables included the Otis Mental Ability Score and a number of control variables, including Sex, Race, Economic Status, etc.

The criterion measures, control scores, and the a priori scores were correlated to examine their interrelationships. In addition, empirical keys were constructed on the biographical data in a double cross-validation design to examine their validity in predicting the criteria. This process consisted of analyzing each of the items in the Biographical Inventory to determine their validity and then developing composite key scores based on the selected items.

The results showed a remarkably high pattern of validity coefficients. For the empirical keys, validity coefficients were obtained of .77, .71, and .76 in predicting the GPA, Leadership, and Art and Music criteria. These

validities were extremely high and indicated that biographical data would tend to select those students who had high potential to be academically capable, to be leaders, and to be artists or musicians. The a priori keys also had very high validities. In the case of GPA, the validity coefficients for the a priori keys were .73 and .72 for female and male GPA. For Leadership, the a priori key had a validity of .58, a surprisingly high relationship which reinforced the general procedures used in the selection of students for the Leadership School since the a priori key was built on the basis of theoretical considerations using a construct validation model. The a priori key developed to identify artistic talent had a validity of .65 in this study in separating the control sample from the highly selected sample; again an unusually high validity coefficient in a study of this kind. These results also supported the validity of the current selection procedures.

The Otis Mental Ability Score also showed a pattern of very high validities. Some of this validity, however, must be attributed to the fact that academic performance measures and intellectual ability were of primary consideration in the identification and selection of students for the criterion groups. Thus, to some extent, the sample selection procedures tended to increase the validity of the mental ability measure in this study.

The results from the Economic Status measure and other control variables which included type of community in which the students lived, age, sex, and race, indicated that these variables had a varied pattern of relationships to the criteria and other predictors. For example, the results indicated that the students from the suburban communities were more often designated as artists and musicians than students from rural and urban communities. In addition, the Otis Mental Ability Score showed a typical pattern of discriminating between ethnic groups while the biographical keys had much lower relationships with this race variable. Sex had essentially zero relationships with the criteria. Students from the rural and urban communities were more often designated as being low on the criterion measures and on the Otis Mental Ability Score.

The Economic Status measure did have a pattern of significant correlations with the other measures in this study and the importance of family income or economic status in the development of student aspirations, goals, work habits, etc., was discussed. The need for future research attempting to develop the potential of low income students through various approaches was indicated.

In view of the highly significant results obtained, there was impressive evidence that the biographical approach could facilitate and simplify the selection of students for these programs, with generally less discrimination than current procedures. Future research should be conducted to evaluate in a longitudinal and practical utility sense the effect of using biographical data in the selection of students in special educational programs.

APPENDIX A

N's, MEANS, AND STANDARD DEVIATIONS
FOR THE TOTAL SAMPLE

VARIABLE	N	MEAN	S.D.
GPA	1076	5.35	1.50
Leadership	601	0.30	0.46
All Art and Music	695	0.39	0.49
Race	1084	0.77	0.42
Sex	1085	1.55	0.50
Economic Status	1078	2.16	0.56
Grade Level	1023	1.60	0.49
Rural Community	1065	0.44	0.50
Suburban Community	1065	0.26	0.44
Urban Community	1065	0.31	0.46
Otis Mental Ability Score	1086	55.12	13.92
IBRIC Female GPA Key	1086	108.99	15.79
IBRIC Male GPA Key	1086	109.78	14.75
IBRIC Creativity Key	1086	107.02	6.11
IBRIC Leadership Key	1086	97.17	14.54
IBRIC Artistic Talent Key	1086	95.80	6.86
GPA Key	1086	117.40	31.64
Race Key	1086	99.8[illegible]	2.43
Economic Status Key	1086	101.48	5.21
Leadership Key	1086	129.12	31.16
All Art and Music Key	1086	122.23	28.79

APPENDIX B

N's, MEANS, AND STANDARD DEVIATIONS FOR SUBSAMPLES

VAR.	CONTROL			WHITE			NON-WHITE		
	N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.
1	418	4.18	1.50	824	5.49	1.45	231	4.83	1.58
2	421			426	.29	.45	165	.33	.47
3	421			563	.46	.50	122	.10	.30
4	421	.72	.45	831	1.00	.00	234	.00	.00
5	421	1.55	.50	830	1.54	.50	234	1.58	.49
6	417	2.01	.50	825	2.26	.52	232	1.81	.57
7	417	1.41	.49	782	1.61	.49	221	1.57	.50
8	403	.56	.50	814	.43	.50	230	.47	.50
9	403	.02	.15	814	.29	.46	230	.14	.35
10	403	.41	.49	814	.28	.45	230	.39	.49
11	421	44.33	12.85	831	57.77	12.55	234	45.72	14.75
12	421	97.69	13.43	831	110.28	16.14	234	104.47	13.69
13	421	99.71	13.39	831	110.63	15.02	234	106.70	13.25
14	421	103.96	5.04	831	107.59	6.23	234	105.03	5.20
15	421	90.57	11.73	831	97.32	14.56	234	96.56	14.27
16	421	90.62	5.49	831	96.74	6.84	234	92.53	5.89
17	421	89.75	25.71	831	120.19	31.25	234	107.08	30.78
18	421	99.01	2.35	831	100.39	2.15	234	97.94	2.44
19	421	97.56	5.28	831	102.14	4.99	234	99.01	5.32
20	421	102.62	24.32	831	130.84	30.93	234	122.75	30.95
21	421	95.90	21.14	831	125.99	28.68	234	109.08	25.21

APPENDIX B (Continued)

N's, MEANS, AND STANDARD DEVIATIONS FOR SUBSAMPLES

VAR.	ALL ART AND MUSIC			LEADERSHIP			ACADEMIC		
	N	MEAN	S.D.	N	MEAN	S.D.	N	MEAN	S.D.
1	272	5.77	0.98	175	5.95	0.84	211	6.63	0.59
2	0	.00	.00	180	1.00	.00	0	.00	.00
3	274	1.00	.00	0	.00	.00	0	.00	.00
4	274	0.94	9.23	180	0.68	0.47	209	0.70	0.46
5	273	1.58	0.49	180	1.55	0.50	211	1.52	0.50
6	272	2.35	0.56	179	2.19	0.58	210	2.17	0.52
7	244	1.69	0.46	153	1.71	0.45	209	1.81	0.39
8	271	0.13	0.34	180	0.58	0.49	211	0.46	0.50
9	271	0.57	0.50	180	0.22	0.41	211	0.34	0.48
10	271	0.30	0.46	180	0.20	0.40	211	0.20	0.40
11	274	61.03	9.12	180	57.41	9.99	211	67.02	7.18
12	274	112.88	13.21	180	114.02	11.62	211	122.20	10.65
13	274	112.68	12.59	180	115.38	10.44	211	121.34	9.55
14	274	108.67	6.02	180	108.54	5.55	211	109.66	6.15
15	274	97.30	13.88	180	109.01	12.56	211	100.06	14.72
16	274	100.19	5.44	180	98.03	5.81	211	98.56	4.94
17	274	128.59	21.88	180	135.84	19.55	211	142.33	16.99
18	274	101.43	1.74	180	99.63	2.46	211	99.74	2.37
19	274	104.52	3.22	180	102.91	3.33	211	104.12	3.11
20	274	138.67	22.50	180	153.59	20.19	211	148.72	20.06
21	274	143.40	17.94	180	133.97	18.63	211	137.29	18.79

APPENDIX C

INTERCORRELATION MATRIX OF ALL VARIABLES
IDENTIFICATION OF TALENT IN NORTH CAROLINA SCHOOLS

		CRITERIA			DEMOGRAPHIC VARIABLES							A PRIORI SCORES						EMPIRICAL KEYS				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
GPA	1.	--																				
Leadership	2.	52	--																			
All Art and Music	3.	51	00	--																		
Race	4.	17	-05	28	--																	
Sex	5.	09	00	03	-03	--																
Economic Status	6.	28	15	29	32	06	--															
Grade Level	7.	31	27	28	02	03	06	--														
Rural Community	8.	-07	02	-43	-02	05	-17	-06	--													
Suburban Community	9.	26	33	63	15	02	21	13	-52	--												
Urban Community	10.	-17	-21	-12	-12	-07	-02	-05	-59	-39	--											
Otis Mental Ability Score	11.	71	45	58	35	-03	31	31	-19	30	-08	--										
IBRIC Female GPA Key	12.	73	50	49	15	-01	21	21	-13	26	-11	64	--									
IBRIC Male GPA Key	13.	72	50	44	11	02	21	21	-13	24	-09	60	93	--								
IBRIC Creativity Key	14.	41	38	39	18	-21	20	12	-07	19	-10	46	61	53	--							
IBRIC Leadership Key	15.	30	58	25	02	-07	13	13	01	06	-07	27	36	38	53	--						
IBRIC Artistic Talent Key	16.	61	52	65	25	-03	29	20	-22	34	-09	60	75	71	65	52	--					
GPA Key	17.	77	66	62	17	03	27	29	-18	29	-08	72	86	87	60	58	82	--				
Race Key	18.	26	12	49	39	02	26	04	-18	23	-02	35	28	23	29	20	45	34	--			
Economic Status Key	19.	61	46	60	23	01	38	27	-31	36	-02	66	65	63	46	38	69	76	58	--		
Leadership Key	20.	68	71	60	11	00	23	29	-14	24	-08	63	76	77	64	75	80	94	31	70	--	
All Art and Music Key	21.	68	65	76	24	05	32	29	-27	38	-07	69	75	71	63	52	85	87	46	78	86	--

Note: All decimal points omitted

APPENDIX D

BIOGRAPHICAL INVENTORY*

FORM R

Introduction

The purpose of this inventory is to discover information about some of the important factors in the backgrounds and lives of students, and to compare this information to different types of contributions and accomplishments. There are no right or wrong answers, only questions about your background, interests, school work, etc. For each question select the ONE answer that best describes you.

1. Write your name, sex, grade, age and student identification number as directed on the separate answer sheet.

2. Read each question carefully so that you will know what to do. Select the ONE answer which best applies to you.

3. Record your answer on the answer sheet by making heavy black marks that fill the space completely. Use a black lead pencil only (#2-1/2 or softer). Do not make any marks on this booklet.

4. Erase clearly any answer you wish to change. Make no stray marks on the answer sheet.

5. Please try to answer all questions. If a question doesn't apply to you, give the closest or most possible answer. For example, a question may ask for your judgment about your estimated ability as a businessman. Even if you have no desire of being a businessman or have no past experience in this area, complete the question by giving your best estimate. However, if you cannot answer a few questions or if there are a few questions you do not wish to answer, leave them blank. In any case, be sure to check that the item you mark on the answer sheet has the same number as the question you are answering.

6. You will find a few questions about your father or your mother. Answer these questions in terms of the person who most fully served as a father or mother to you. This person may be either your own mother or father, a foster parent, a relative, a guardian or someone else.

7. Remember, you are to select only the ONE answer that best applies to you for each question.

8. There is no time limit, but work as rapidly as you can.

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*Institute for Behavioral Research in Creativity, Salt Lake City, Utah, copyright, 1973.

1. What is your sex?
   A. Male.
   B. Female.

2. What kind of course are you taking in high school?
   A. General.
   B. College preparatory.
   C. Trade or vocational.
   D. Fine arts or music.
   E. Other.

3. How old are you?
   A. 12 or less.
   B. 13-14.
   C. 15-16.
   D. 17-18.
   E. 19 or older.

4. What kind of pre-elementary school training did you have?
   A. Attended nursery school only.
   B. Attended kindergarten only.
   C. Attended both nursery school and kindergarten.
   D. Attended neither nursery school nor kindergarten.

5. How old were you when you first became interested in what makes things work, such as vacuum cleaners, electric lights, etc.?
   A. I never did.
   B. I don't remember.
   C. Under six years of age.
   D. 6 to 12 years old.
   E. Over 12 years old.

6. How old were you when you first began to do writing (stories, poems, etc.) outside of school work?
   A. Never actively participated.
   B. 7 years or younger.
   C. 8 to 12.
   D. 13 to 15.
   E. 16 or older.

7. How old were you when you first began to read fiction outside of school?
   A. Never actively participated.
   B. 7 years or younger.
   C. 8 to 12.
   D. 13 to 15.
   E. 16 or older.

8. How old were you when you first developed a high interest in literature?
   A. Have not developed a high interest.
   B. 10 years of age or younger.
   C. 11 to 13 years old.
   D. 14 to 15.
   E. 16 or older.

9. How old were you when you first developed a high interest in mathematics?
   A. Have not developed a high interest.
   B. 10 years of age or younger.
   C. 11 to 13 years old.
   D. 14 to 15.
   E. 16 or older.

10. How much artistic training (music, dance, art, drama, writing, etc.) have you had?
   A. None or less than 1 year.
   B. 1 to 2 years.
   C. 3 to 6 years.
   D. 6 to 10 years.
   E. 10 years or more.

11. How old will you be when you graduate from high school?
   A. 16 or younger.
   B. 17.
   C. 18.
   D. 19 or older.
   E. I do not expect to graduate.

12. Which of the following best describes the amount of traveling you have done?
   A. Visited at least one foreign country.
   B. Made at least one long trip in the United States.
   C. Visited some of the neighboring states.
   D. Saw most of my home state.
   E. Saw some of my home state.

13. How important is education considered in your home?
   A. Unimportant.
   B. Nice to have.
   C. Helpful but not necessary.
   D. Very important.
   E. Very important, practically a necessity.

14. How often have you been absent because of illness during your last 2 years of school?
    A. Never.
    B. 1 to 5 days a year.
    C. 6 to 10 days a year.
    D. 11 to 25 days a year.
    E. 26 or more days a year.

15. How much of your spare time is spent on hobbies (model airplanes, photography, making clothes, etc.)?
    A. Most of my spare time.
    B. Quite a bit.
    C. Some.
    D. Very little.
    E. None.

16. How interested are you in making repairs around the house?
    A. Strong interest.
    B. Mild interest.
    C. Indifferent.
    D. Mild dislike.
    E. Strong dislike.

17. How many hours do you spend each week on chores and tasks around the home during the summer?
    A. One or less.
    B. 2 or 3.
    C. 4 to 7.
    D. 8 to 12.
    E. 13 or more.

18. How old were you when you first earned money from a regular job (other than from members of your family)?
    A. 8 years of age or less.
    B. 9 to 10.
    C. 11 to 13.
    D. 14 or older.
    E. I haven't worked at a regular job.

19. How many part-time jobs have you had?
    A. 0 - 1.
    B. 2.
    C. 3.
    D. 4 or more.

20. Have you ever sold magazines or any other product door-to-door for over two weeks?
    A. Yes.
    B. No.

21. How many hours are you working per week on a part-time paid job while you are in school?
    A. None.
    B. 1 to 5.
    C. 6 to 14.
    D. 15 to 25.
    E. 26 or more.

22. Approximately, at what age did you first begin to read the newspaper editorial page consistently?
    A. 7 years or younger.
    B. 8 to 11.
    C. 12 to 15.
    D. Over 15.
    E. Never read the newspaper editorial page.

23. Where and when did you first learn the meaning of "AC" and "DC" current?
    A. Learned prior to 12 years of age outside of school.
    B. Learned prior to 12 years of age in school.
    C. Learned after 12 years of age outside of school.
    D. Learned after 12 years of age in school.
    E. I don't know, or none of the above.

24. Where and when did you first learn the meaning of "monopoly"?
    A. Learned prior to 12 years of age outside of school.
    B. Learned prior to 12 years of age in school.
    C. Learned after 12 years of age outside of school.
    D. Learned after 12 years of age in school.
    E. I don't know, or none of the above.

25. How often do you read the first page of the daily newspaper?
    A. Always.
    B. Frequently.
    C. Occasionally.
    D. Rarely.
    E. Almost never.

26. How much time do you spend collecting (stamps, coins, rocks, etc.)?
    A. Most of my spare time.
    B. Quite a bit.
    C. Some.
    D. Very little.
    E. None.

27. Which one of the following types of music would you most like to listen to for personal enjoyment?
    A. Jazz.
    B. Folk.
    C. Classical.
    D. Popular.
    E. Soul.

28. To how many clubs or societies (Scouts, school clubs, Afro-American groups, etc.) do you belong?
    A. None.
    B. 1 or 2.
    C. 3 or 4.
    D. 5 or 6.
    E. 7 or more.

29. Which of the following do you read most often?
    A. Historical novels.
    B. Mystery stories or novels.
    C. Literary classics.
    D. Biographies or autobiographies.
    E. None of the above.

30. How much do you enjoy reading literary classics?
    A. Greatly like.
    B. Somewhat enjoy.
    C. Don't care for.
    D. Dislike.
    E. Don't know.

31. Has anyone in your immediate family received widespread professional recognition in an artistic (music, dance, art, drama, writing, etc.) area?
    A. Yes.
    B. No.

32. Has anyone in your immediate family participated professionally in an artistic (music, dance, art, drama, writing, etc.) area?
    A. Yes.
    B. No.

33. How much schooling did your father have?
    A. Did not graduate from high school.
    B. High school graduate.
    C. Attended college.
    D. College graduate.
    E. Graduate training.

34. How much schooling did your mother have?
    A. Did not graduate from high school.
    B. High school graduate.
    C. Attended college.
    D. College graduate.
    E. Graduate training.

35. How often do your parents attend cultural activities (i.e., theater, symphonies, ballet, opera, etc.)?
    A. Rarely or never.
    B. Seldom; only a few times a year.
    C. Occasionally; about once a month.
    D. Frequently; more than once a month.

36. When you have a cold, what do you usually do?
    A. Stay in bed
    B. See a physician.
    C. Take home-remedies.
    D. Go to school, but take it easy.
    E. Ignore it.

37. How well have you succeeded in your math courses?
A. Exceptional (A+ to A-).
B. Good (B+ to B-).
C. Fair (C+ to C-).
D. Poor (D+ or below).
E. Never studied the subject.

38. How well have you succeeded in your science courses?
A. Exceptional (A+ to A-).
B. Good (B+ to B-).
C. Fair (C+ to C-).
D. Poor (D+ or below).
E. Never studied the subject.

39. How well have you succeeded in your social studies courses?
A. Exceptional (A+ to A-).
B. Good (B+ to B-).
C. Fair (C+ to C-).
D. Poor (D+ or below).
E. Never studied the subject.

40. How well have you succeeded in your art courses (music, drama, visual arts, etc.)?
A. Exceptional (A+ to A-).
B. Good (B+ to B-).
C. Fair (C+ to C-).
D. Poor (D+ or below).
E. Never studied the subject.

41. How well have you succeeded in your speech courses?
A. Exceptional (A+ to A-).
B. Good (B+ to B-).
C. Fair (C+ to C-).
D. Poor (D+ or below).
E. Never studied the subject.

42. How well have you succeeded in your English courses?
A. Exceptional (A+ to A-).
B. Good (B+ to B-).
C. Fair (C+ to C-).
D. Poor (D+ or below).
E. Never studied the subject.

43. Do you, on your own initiative, work on the solutions of mathematical problems which have not been assigned to you in courses?
A. No.
B. Sometimes.
C. Fairly often.
D. Frequently.

44. How often have you felt that you could organize and plan a group project better than your classmates?
A. Almost always.
B. Often.
C. Occasionally.
D. Seldom.
E. Very seldom.

45. If your teacher gave you an assignment and you disagreed with the way she told you to to it, which one of the following would you be most likely to do?
A. Go ahead and complete the assignment.
B. Talk to the teacher about how to do it.
C. Do it the way you think it should be done.

46. How often has a teacher taken a strong interest in you?
A. Never.
B. Rarely.
C. Occasionally.
D. Frequently.

47. About what percentage of the students in your class do you get better academic grades than?
A. 90 to 99%.
B. 70 to 89%.
C. 30 to 69%.
D. 10 to 29%.
E. 00 to 9%.

48. Do your teachers consider you to be a desirable student? That is, do they like to have you in their classes? Consider such things as whether you are cooperative, on time, reserved, etc., or uncooperative, loud, tardy, a trouble maker, a smart aleck, etc.
A. Desirable student.
B. Rather desirable.
C. Not particularly desirable.
D. Rather undesirable.
E. Undesirable.

49. In general, how good have your science teachers been?
A. Extremely good.
B. Fairly good.
C. Neither good nor poor.
D. Rather poor.
E. Extremely poor.

50. How many hours per week do you spend doing your home work?
A. 5 or less.
B. 6 to 10.
C. 11 to 15.
D. 16 to 20.
E. More than 20.

51. How much of your spare time do you spend in serious academic study not counting required school work?
A. None.
B. Very little.
C. Some.
D. Quite a bit.
E. Most of my spare time.

52. How well can you concentrate on your academic studies?
A. Have no trouble.
B. Have a little trouble.
C. Have quite a bit of trouble.
D. Have a great deal of trouble.

53. How would you rate your study skills and habits (ability to outline well, take notes, organize, concentrate, get things done, etc.)?
A. Exceptionally good.
B. Good.
C. About average.
D. Somewhat below average.
E. Definitely below average.

54. What is your average academic grade in school?
A. B plus or better.
B. B or B minus.
C. C or C plus.
D. C minus or D plus.
E. D or lower.

55. During school, how many awards for academic types of achievement (good grades, science fair, etc.) have you received?
A. None.
B. 1.
C. 2.
D. 3 or 4.
E. 5 or more.

56. Which of the following best describes your study habits?
A. Keep up with all my subjects.
B. Fall behind in all my subjects then cram for examinations.
C. Keep up with some subjects and fall behind in others.
D. Never study. Get all my information from class.

57. How important is it, to you to get good academic grades?
A. Extremely important.
B. Important.
C. Somewhat important.
D. Not too important.
E. Not important at all.

58. Which one of the following best describes how you follow directions given by teachers?
A. I usually follow them.
B. I often challenge them.
C. Frequently forget them.
D. None of the above.

59. When you are about to take a test, how do you feel?
A. Relaxed and sure I will make a good grade.
B. Nervous and uneasy, but confident of a satisfactory grade.
C. Relaxed and sure of a satisfactory grade.
D. Nervous because I might fail.
E. None of these.

60. When working on an interesting report or paper, how often do you do it over and over until is it as good as you can make it?
A. Once is enough.
B. Sometimes.
C. Frequently.

61. About what percentage of students do you think you would be better than if you did the very best you could during your academic school career?
A. 90 to 99%.
B. 80 to 89%.
C. 70 to 79%.
D. 60 to 69%.
E. Less than 60%.

62. How much do you apply yourself to your academic school work?
A. To a great extent.
B. To a large extent.
C. To some extent.
D. To a small extent.

63. How many courses, if any, have you failed?
A. None.
B. 1.
C. 2.
D. 3.
E. 4 or more.

64. When you don't know the answer to a question on a test, do you look up the answer when the test is completed?
A. Always.
B. Occasionally.
C. Very seldom or never--the test is over, why worry about it.

65. How fast do you usually do academic work compared to your classmates?
A. Much faster.
B. Somewhat faster.
C. About the same pace as my classmates.
D. Somewhat slower than my classmates.
E. Unable to tell.

66. Compared to others in your academic classes, how often do you question your teachers on subject matter?
A. Considerably more often than average.
B. Somewhat more often than average.
C. About average.
D. Somewhat less often than average.
E. Considerably less often than average.

67. How do you compare with all other students in your grade in academic school marks?
A. Considerably above average.
B. Somewhat above average.
C. About average.
D. Somewhat below average.
E. Considerably below average.

68. Describe the way you feel when you discuss most of your academic activities and accomplishments with your friends.
A. Feel very good.
B. Feel good.
C. Feel satisfied.
D. Feel somewhat uncomfortable.
E. Do not usually discuss my accomplishments with my friends.

69. How do you feel about the material which is presented to you in school?
A. Often feel the need for more explanation.
B. Sometimes feel the need for more explanation than is presented.
C. Usually feel that the material presented is adequately explained.

70. How would you feel about giving a speech before a large group of your classmates?
A. Could not be forced to make such a talk.
B. Would do it but would dislike it very much.
C. Wouldn't object too much.
D. Like to make such talks very much.

71. What do you feel is your main reason for going to high school?
    A. To gain knowledge or skills to apply to my future occupation.
    B. To learn for the sake of learning.
    C. Parental or social pressure.
    D. Social activities.
    E. None of these.

72. What do your teachers think of you? They think I'm:
    A. Able to get things done easily.
    B. A hard worker.
    C. A lazy student.
    D. Work only hard enough to get by.
    E. Not very interested in school subjects.

73. What do you consider to be your capacity or ability to succeed academically (sciences, math, English, social studies, etc.) in school?
    A. Superior.
    B. Considerably above average.
    C. Somewhat above average.
    D. About average.
    E. Somewhat below average.

74. If you had a choice of activities in a class, which one of the following would you most likely do?
    A. Work by yourself.
    B. Work with others.
    C. Work for someone else.
    D. Direct the work of others.

75. Different students do things in different ways. Which one of the following would you be most likely to do?
    A. Learn the rules and then follow them.
    B. Get to know the teachers and what you can do.
    C. Feel that you have sufficient freedom to generally do what you want.

76. How often have you been the president of your class or school?
    A. 2 or more times.
    B. Once.
    C. Have never held this particular office.

77. How often have you been elected an officer or leader of a student committee or club?
    A. Many times (5 or more).
    B. A few times (3 or 4).
    C. Once or twice.
    D. Never.

78. How often have you run for a student office?
    A. Many times (8 or more).
    B. A few times (3 to 7).
    C. Once or twice.
    D. Never.

79. Have you ever been a member of your school student council?
    A. Yes, 3 or more times.
    B. Yes, once or twice.
    C. No.

80. Have you ever been a cheerleader?
    A. Yes.
    B. No.

81. Have you ever acted as editor or assistant editor of a publication?
    A. Yes.
    B. No.

82. Have you ever been a member of the debating team?
    A. Yes.
    B. No.

83. What level of education do you intend to achieve?
    A. To graduate from high school.
    B. A few years of college.
    C. Possibly graduate from college.
    D. Graduate from college.
    E. To obtain a graduate degree (MA, PhD, MD, LLD, etc.)

84. How much will an academic scholarship contribute to your expenses if you go to college?
    A. Do not plan on attending college.
    B. A great deal.
    C. Some.
    D. Little, if any.
    E. Don't know.

85. Do you plan to major in an artistic area in college?
   A. Am not going to college.
   B. Am not sure.
   C. No.
   D. Yes.

86. If you are given a classroom assignment that you don't understand or don't know how to begin, what are you most likely to do?
   A. Talk to the teacher alone about how it should be done.
   B. Find some other students and talk to the teacher together about it.
   C. Find a student who understands the assignment and ask him about it.
   D. Get together with some other students and work on it.
   E. Try to work it out on my own.

87. What is your feeling concerning the best grading policy?
   A. A sizeable proportion of the class should fail a course in order to keep up the standards.
   B. Grading should be done on the normal curve (i.e., approximately 10% should fail).
   C. Only a few who do an exceptionally poor job should be failed.
   D. No one should fail the course (except possibly in extreme or unusual cirsumstances).

88. Do you like to study?
   A. Yes.
   B. No.
   C. Sometimes.

89. When you have a teacher who lectures in the same tone of voice for the entire class, what do you do? (Mark only one).
   A. Frequently almost go to sleep and miss most of what he says.
   B. Disregard the ability of the teacher as a speaker and concentrate on the content of the material.
   C. Become distracted by other things.
   D. Lose interest in the subject matter.

90. Rate your desire, as compared to your classmates, to learn and know the basic techniques and knowledge in your area of specialization.
   A. Have no area of specialization.
   B. Outstanding.
   C. Excellent.
   D. About average.
   E. Somewhat below average.

91. Compared to other students, describe the degree to which you have achieved the fundamental knowledge and techniques essential for successful performance in your area of specialization.
   A. Have no area of specialization.
   B. Somehwat below average achievement.
   C. About average achievement.
   D. Good achievement.
   E. Outstanding achievement of knowledge and techniques.

92. Do you like to practice to develop your talent or skill in a particular area of interest?
   A. Yes.
   B. Sometimes.
   C. No.

93. Rate your degree of sensitivity and awareness to your environment. Consider your ability to recognize and appreciate significant aspects of sound, color, form, etc., to separate the elegant and enduring from the fad or commonplace occurrence.
   A. Somewhat below average sensitivity.
   B. About average sensitivity.
   C. Somewhat above average sensitivity.
   D. Good sensitivity.
   E. Outstanding sensitivity.

94. Has the amount of time you have spent in developing your capability in an area of special interest interfered with or influenced your social life?
A. Not at all.
B. To a small extent.
C. To some extent.
D. To a large extent.
E. To a great extent.

95. How serious a student in the arts are you at this time?
A. Not at all interested, have not taken any art classes beyond those required.
B. Only passing interest, I am taking, or have taken, only one or two classes in the arts.
C. Not very serious, I am taking, or have taken, a few classes as electives.
D. Quite serious, I am taking, or have taken, a number of classes in the arts.
E. Very serious, I consider an artistic area my major.

96. Which one of the following best describes your study habits?
A. I do not do much studying because I do not want to.
B. I do not do much studying because of other activities.
C. I do not do much studying because it isn't necessary.
D. I study hard but only before examinations.
E. I study regularly throughout the school year.

97. How often have you used outside reference books (something other than the text) in the study of a subject?
A. Very frequently.
B. Frequently.
C. Occasionally.
D. Rarely.
E. Practically never.

98. How often do you make an outline of a text book or the materials presented in class?
A. Practically always.
B. Frequently.
C. Occasionally.
D. Rarely.
E. Never.

99. What is your reaction to a new task or assignment?
A. I enjoy the challenge of new tasks, but lose interest after I learn how to handle the problem.
B. I am usually uncomfortable until I have organized the task and discovered the best way to attack it.
C. Neither of the above.

100. When working on a difficult problem, which do you prefer?
A. To stay with it until you find a solution.
B. To study it for a while then get away from it so that fresh ideas will come later.

101. Generally, how do you most often solve a problem?
A. Studying it out alone.
B. Discussing it with others.
C. Both of the above about equally.

102. How often do you study with another student or students?
A. Very often.
B. Often.
C. Sometimes.
D. Seldom.
E. Very seldom, if ever.

103. How much do you usually plan ahead?
A. Make careful and detailed plans.
B. Make broad and general plans, but not detailed ones.
C. Make few plans, let "nature take its course".

104. Have you decided upon your future occupation?
A. Have very definite plans.
B. Have some tentative plans.
C. Have not made any plans yet.

105. What level of success do you expect to achieve in your chosen field?
A. Among the top 10% in my field; one of the best.
B. Expect to be above average.
C. Will probably be about average.
D. Don't know.

106. Considering your abilities and interests, what is your potential to become a civic leader in your community?
A. Very high potential.
B. Fairly high potential.
C. Not too much potential.
D. Very little potential.

107. Describe how well informed you expect to become in music, art, and literature.
A. Very well informed, an expert.
B. Well informed.
C. Somewhat well informed.
D. Not very well informed.
E. Don't know.

108. What income do you expect to have ten years after your graduation from high school? (NOTE: This item refers to your own income. If you expect to be married and not working, select the first alternative).
A. Do not expect to have my own income.
B. $7,000 or less.
C. $7,001 to $12,000.
D. $12,001 to $21,000.
E. Over $21,000.

109. When did you decide on your occupation?
A. In junior high school or earlier.
B. In high school.
C. Have not decided.

110. How often do you feel that you have set higher standards for yourself than anyone else?
A. All the time.
B. Frequently.
C. Occasionally.
D. Rarely.
E. Very rarely.

111. Where have you gained the most knowledge?
A. School.
B. From my family and home environment.
C. Reading on my own, outside of school work.
D. My own observations.

112. How curious are you?
A. Very curious about many things.
B. More curious than average about intellectual topics.
C. More curious than average about mechanical things.
D. About average in curiosity.
E. Probably less curious than average.

113. If you were to visit a manufacturing company, what would interest you most? (Mark only one).
A. Methods for testing the strength of new materials.
B. Methods for predicting the properties of new materials.
C. Methods for increasing public demand for new materials and other products.
D. Methods for handling public relations.
E. Methods for transporting raw materials.

114. Often people pay practical jokes on each other. How have you usually participated in playing a practical joke on someone?
A. I usually lead others in playing a practical joke on someone.
B. I am usually just an accomplice to a practical joke.
C. I usually just sit back and enjoy watching others play the joke.
D. Usually think it is not right and do not participate.

115. How have you reacted to the advantages and opportunities that have been presented to you?
   A. I have taken advantage of every opportunity.
   B. I have generally tried to take advantage of any opportunity.
   C. I have taken advantage of some and not of others.
   D. I have not had too many opportunities, but have taken advantage of the ones I have had.
   E. I have failed to take advantage of many opportunities presented.

116. How frequently in the past have you been able to talk yourself out of a tight spot?
   A. Very frequently.
   B. Frequently.
   C. Sometimes.
   D. Rarely or never.
   E. Don't get in tight spots enough to know.

117. Which of the following statements do you feel best describes how you usually act at school?
   A. Stand up for my beliefs.
   B. Stand up for my beliefs if some others agree with me.
   C. Go along with the crowd.

118. Compared to your friends, how often do you take the responsibility for organizing a party or some other activity?
   A. I'm usually the one who does it.
   B. Often get things going.
   C. Sometimes get involved.
   D. Rarely do much.
   E. I may participate, but not in organizing it.

119. How often do you attempt to figure out why other people act as they do?
   A. All the time.
   B. Frequently.
   C. Occasionally.
   D. Rarely.
   E. Very rarely.

120. How often do you tend to suggest somewhat "wild ideas" during a discussion with your friends?
   A. Frequently.
   B. Occasionally.
   C. Rarely.
   D. Never.

121. How persistent or aggressive are you in gaining recognition for your ideas or accomplishments?
   A. Very persistent.
   B. Quite persistent.
   C. Somewhat persistent.
   D. I'm not very persistent.

122. Rate your ability to describe your thoughts and ideas to your friends.
   A. Very good.
   B. Better than average.
   C. About average.
   D. Somewhat less than average.
   E. Poor

123. How would you describe your ability to resolve an argument between two of your friends?
   A. Outstanding.
   B. Excellent.
   C. Good.
   D. About average.
   E. Somewhat below average.

124. How important is it to you to have other people listen to your ways of doing things?
   A. Very important.
   B. Moderately important.
   C. About average importance.
   D. Not very important.

125. If your class were organizing a party, on which of the following committees would you prefer to be?
   A. Planning.
   B. Decorations.
   C. Advertising.
   D. Clean up.

126. How much opportunity have you had to demonstrate your ability as a leader?
A. A great deal of opportunity.
B. Some opportunity.
C. Very little opportunity.
D. Almost no opportunity.

127. Which are you more likely to be?
A. Forceful.
B. Cooperative.

128. When you have a rather humiliating experience, how long do you worry about it?
A. It doesn't bother me at all.
B. It bothers me for a little while, but not for long.
C. I occasionally worry about it for a long time.
D. I often worry about it for a long time.

129. How do you behave when things do not go right?
A. Tend to become moody and cross.
B. Don't let it bother me; manage to remain cheerful and good natured.
C. It bothers me, but I don't take it out on other people.

130. How often have you planned an activity for you and several of your friends?
A. Often.
B. Occasionally.
C. Seldom.
D. Never.

131. If you have entered a contest or are playing a game, how important to you is it to win?
A. Very important. I try hard to win any game or contest I enter.
B. Important. I enjoy winning but it doesn't matter too much if I lose.
C. Not very important. I enjoy games or contests no matter who wins.
D. Don't know. I don't usually play games or enter competition.

132. How important is it to you to be popular with other people?
A. Very important.
B. Moderately important.
C. Something which concerns me very slightly.
D. Something to be ignored.

133. How would you describe yourself in relation to your friends?
A. A leader.
B. A follower.

134. What do you do when your opinions differ from others?
A. Generally keep them to myself.
B Usually express them only to friends.
C. Often tell people about my opinions.

135. How would you rate your ability to get people to cooperate with you?
A. Excellent.
B. Good.
C. About average.
D. Somewhat below average.
E. Poor.

136. How do you feel about talking to people you don't know?
A. Almost always find it rather enjoyable.
B. Usually find it rather enjoyable.
C. Usually find it rather unpleasant.
D. Almost always find it unpleasant.
E. Never talk to people I don't know.

137. How comfortable do you feel about criticizing your friends when they are wrong?
A. Very uncomfortable, I never do it.
B. Uncomfortable, I don't do it often.
C. Comfortable, I do it occasionally.
D. Very comfortable, I do it fairly often.

138. How well can you think under pressure?
A. I'm at my best.
B. Very well.
C. Well.
D. About average.
E. Get a little rattled under pressure.

139. If you were working on a job where some rules, regulations, policies, etc., had a bad influence on your work, would you try to get them changed?
A. No--probably not.
B. Yes--but probably not very hard.
C. Definitely--yes.

140. Which is more important to you?
A. To learn to become a good team member, able to work with others for a common goal.
B. To learn to direct and lead others to reach a goal.
C. Don't know.

141. Which kind of job do you think you would prefer?
A. One which guaranteed reasonable advancement and security but no chance to advance beyond a certain level.
B. One which offered the opportunity for advancing to the top but where you could be fired if you didn't perform well.

142. Rate your ability to lead other people.
A. Outstanding.
B. Excellent.
C. Somewhat above average.
D. About average.
E. Somewhat below average.

143. When would you be likely to take on a heavy load of extra work?
A. If additional comforts and luxuries would result.
B. If I had the chance of receiving recognition through my work.
C. Either of the above if the work wouldn't interfere with family life or other interests.
D. Inner compulsiveness to just do it.
E. Avoid extra work when possible.

144. Have you ever stayed home from school in order to practice on something or pursue an idea?
A. Yes--a number of times.
B. Yes--once or twice.
C. [illegible]

145. If you were working on a job and your supervisor started a new plan which you felt would be useless, what would you do?
A. Try out his plan.
B. Ask for more information about his plan.
C. Talk it over with him pointing out its weaknesses.
D. It would depend upon other things.

146. How do you feel when someone points out a mistake you have made?
A. Greatly resent it.
B. Tend to resent it.
C. No particular reaction.
D. Can accept it well.

147. If you have a chance to introduce yourself to someone you don't know, what do you usually do?
A. Hesitate and allow the other person to make the first move.
B. Introduce myself briefly and wait for the other person to carry on the conversation.
C. Introduce myself and start a conversation so that I can learn more about the other person.

148. If you have changed schools at any time in your life (not counting promotions from one school to another), how much trouble did you have making friends in the new school?
A. I have never changed schools.
B. No trouble in making new friends.
C. Little, if any, trouble.
D. Some trouble.
E. Quite a lot of trouble.

149. When one of your friends disagrees with you, what do you usually do?
A. Ignore it.
B. Change my opinions.
C. Try to explain myself better.
D. Depends on the situation.

150. What would you do if you disagreed strongly with a school rule or regulation?
A. I would probably obey the rule.
B. I would try to have the rule changed.
C. I would organize a group to try and have the rule changed.
D. Don't know, it would depend on the situation.

151. Which of the following best describes how you feel about your social ability compared to others your age?
A. Somewhat below average.
B. About average.
C. Slightly above average.
D. Definitely above average.
E. Have not been concerned about it yet.

152. How do you feel about rules and regulations?
A. They should generally be followed by all members of the organization.
B. They should be considered as guides but not always strictly followed.

153. How do you feel about your social and intellectual ability?
A. Am very confident of both.
B. Am quite confident of both.
C. Quite confident about my intellectual ability, but not as confident about my social ability.
D. Quite confident about my social ability, but not as confident about my intellectual ability.
E. Lack some self-confidence in both.

154. When you have a date to go to a party or other group activity, which do you prefer?
A. To go with a group of people.
B. To double date.
C. To go alone with my date.
D. Don't know.

155. Which of the following best describes you at a party or social gathering?
A. Usually I am very active and enjoy myself at any social function.
B. I'm just one of the gang.
C. I usually enjoy myself, but I tend to be rather reserved.
D. Often find that I am rather bored, although I am seldom uncomfortable.
E. I am usually rather shy or uncomfortable.

156. How would you describe your social activities involving the oppostie sex, such as dances, dates, etc.?
A. Participate very often in social activities and enjoy them very much.
B. Participate often in social activities and almost always enjoy them.
C. Participate occasionally in social activities and generally enjoy them.
D. Rarely participate in social activities due to lack of time and other interests.
E. Hardly ever participate in social activities due to shyness and/or other interests.

157. Have your personal interests and hobbies interfered with or influenced your social life, friends, school work, etc.?
A. Not at all.
B. To a small extent.
C. To some extent.
D. To a large extent.
E. To a great extent.

158. How much are you the kind of person who becomes so involved in his own activities and interests that he does not mind a lack of friends?
A. To a great extent.
B. To some extent.
C. To a small extent.
D. To a very small extent.
E. Not at all.

159. What is your reaction to a situation in which another student has shown more competence than yourself?
A. Resent it.
B. Just accept it.
C. Become highly motivated to do better.
D. Quit.

160. Does it bother you to have people ask your advice or interrupt you when you are working on something important?
A. Yes.
B. Not sure.
C. No.

161. How would you describe yourself?
A. A doer.
B. A thinker.

162. How would your friends describe you?
A. A loner; does things his own way.
B. A mixer; likes to think up things for the group to do.
C. Easygoing; always ready to go along with the group.
D. Highly competitive; always wants to win.
E. None of the above or don't know.

163. Which of the following is the most descriptive of you?
A. Intellectual, well read.
B. Self-confident, aggressive.
C. Neither is very characteristic.

164. Which one of the following would you most like to be if a new club were started?
A. Not likely to join a new club.
B. Member.
C. Secretary--keep records.
D. Treasurer--keep track of money.
E. President.

165. When you are out for a social evening, how large a social group do you prefer?
A. From 2 to 4 people.
B. Generally prefer small groups and only occasionally prefer large groups.
C. Generally prefer large groups, but small groups are sometimes pleasant.
D. It doesn't matter about the size of the group.

166. Compared with most of your classmates, how easily do you make friends?
A. Much easier.
B. A little easier.
C. With the same effort.
D. It's a little more difficult.
E. It's a great deal more difficult.

167. How often do you have a desire to be alone with your own thoughts and interests?
A. Very frequently?
B. Frequently?
C. Occasionally.
D. Rarely.
E. Very rarely.

168. On the average, how often do you go out socially on dates?
A. Two or three times a week or more.
B. Once or twice a week.
C. Two or three times a month.
D. About once a month.
E. Less than once a month.

169. How would you describe your ambition?
A. Am very ambitious, intend to make something of myself.
B. Am quite ambitious; take it for granted I will make something of myself.
C. About average in ambition.
D. Not very ambitious; am not concerned about it.
E. Not at all ambitious.

170. Which one of the following best describes you?
A. Want to be successful in order to make my family proud of me.
B. Want to be successful because I want to be a group leader.
C. Want to be successful in order to help others.
D. Want to be successful to please myself.
E. Don't know or does not apply.

171. Do you have enough self-control to actively keep working for things you want in the future?
A. Always.
B. Usually.
C. Sometimes.
D. Seldom.
E. Never.

172. How important is it, to you, to go to college?
A. Extremely important.
B. Important.
C. Somewhat important.
D. Not very important.

173. Do you think an organization should have a rule book of policies and procedures and follow it?
A. Generally yes, it would result in smoother and more efficient operations.
B. Generally no, it would make new developments and procedures more difficult.

174. Compared to your friends, how sensitive are you to criticism or corrections by your teachers?
A. Very sensitive.
B. Quite sensitive.
C. Rather sensitive.
D. Insensitive.

175. Which one of the following would be more important to you?
A. To become an important leader of people.
B. To learn to live in peace with myself and others.

176. Which is more important to you?
A. To have people like me and feel friendly toward me.
B. To have people respect my opinions.
C. Neither is very important to me.

177. Which of the following best describes you?
A. Greatly influence my friends in their opinions, activities, or ideas.
B. Influence my friends somewhat in their opinions.
C. Sometimes influence my friends, sometimes do not.
D. Do not influence my friends much, but have strong ideas of my own.

178. Which one of the following do you enjoy the most?
A. A western movie.
B. Bowling.
C. An art exhibit.
D. An opera or ballet.
E. Just sitting around with friends.

179. Do you like to hunt or fish?
A. Yes.
B. No.
C. Have never participated.

180. How many awards for artistic achievement (in music, art, dance, etc.) have you received?
A. None.
B. 1.
C. 2.
D. 3 or 4.
E. 5 or more.

181. Pretend you have to make a choice between the two courses of action below. Which one of the two would you be most likely to do?
A. Be a good team member so that others like to work with me.
B. Be known as one whose word can be trusted even if it means an argument.

182. How important is it to you to be creative and imaginative?
A. Extremely important.
B. Important.
C. Somewhat important.
D. Unimportant.
E. Very unimportant.

183. During the past two years, how much actual opportunity have you had to express yourself in some form of creative activity (art, dance, your own science project, etc.)?
A. Great opportunity.
B. Some opportunity.
C. Little opportunity.
D. Very little opportunity.
E. No opportunity.

184. How important is it to you to be liked and admired by others?
A. Not very; I rarely try to change a person's opinion of me.
B. Somewhat important, but I don't work very hard at it.
C. Quite important; I always try to "put my best foot forward".
D. Very important. I work hard at being liked and admired by others.

185. How would you feel about speaking before an audience other than at school, i.e., an audience at church, or in the community?
A. I could not be forced to.
B. I would do it if asked but I would dislike it very much.
C. I wouldn't mind doing it.
D. I would enjoy it very much.

186. How self-confident are you?
A. Am very confident of myself.
B. Am quite confident of myself.
C. Have some self-confidence.
D. Am not very self-confident.

187. How energetic or active are you?
A. I am constantly active and on the go.
B. Frequently active.
C. Fairly active, occasionally get a little tired.
D. Only moderately active, I take it easy fairly often.
E. Not very active, frequently relax and take it easy.

188. How interested are you in doing things in different or original ways? Consider things like your school work, making up new games, hobbies, etc.
A. Little or no interest.
B. Somewhat interested.
C. About the same interest as my classmates.
D. Highly interested.
E. Very highly interested.

189. How would you describe yourself in terms of responsibility and dependability in comparison with your classmates?
A. Somewhat below average.
B. About average.
C. Somewhat above average.
D. Excellent.
E. Outstanding.

190. Do you ever go along with your friends' activities even though you would rather do something else?
A. No, if I want to do something else, I do it.
B. Rarely, if I don't like what my friends are doing, I talk them into doing something else.
C. Sometimes, I don't try to be the boss all the time.
D. Usually, I would rather go along with my friends than do something alone.

191. To what extent would you (or do you) enjoy performing before an audience?
A. To a very large extent.
B. To a large extent.
C. To some extent.
D. To a small extent.
E. To a very small extent.

192. How important do you feel it is to have friends or make the right contacts in order to be successful?
A. Extremely important; perhaps the most important factor.
B. Very important; but not the most important factor.
C. Important, but other things matter more.
D. It is not very important; makes little difference.

193. Would it be important to you to have an important job in an organization where you were working?
A. Extremely important.
B. Very important.
C. Relatively important.
D. Not too important.
E. Not at all important.

194. How much responsibility would you like to have in a job?
A. Like to have a good deal of responsibility.
B. Like to have some responsibility but still have someone responsible over me.
C. Prefer a minimum of responsibility.
D. Prefer to be responsible only to myself.

195. How good is your memory?
A. Really outstanding.
B. Excellent.
C. Good.
D. About average.
E. Somewhat below average.

196. Compared with your friends, what is your ability to understand things before they are fully explained?
A. Outstanding.
B. Excellent.
C. Somewhat above average.
D. About average.
E. Somewhat below average.

197. Which of the following kinds of jobs would you prefer?
A. One that allowed me to train and supervise others.
B. One where I had certain things to get done.
C. One that allowed me a great deal of freedom.

198. Which one of the following would you be most likely to work toward in your career?
A. Manager or director of a large number of departments or groups of people.
B. Manager or director of one large group of people.
C. A manager or director of a small group of people.
D. A position where I am allowed to work alone on my own ideas.
E. A position as member of a group which works as a unit to achieve its goals.

199. Rate your drive in comparison to your classmates, consider the speed at which you work and the amount of work you get done.
A. Somewhat below average.
B. Average.
C. Somewhat above average.
D. Good.
E. Outstanding.

200. How do you compare with all other students in your grade in creativity and imagination?
A. I am much above average.
B. I am somewhat above average.
C. I am about average.
D. I am somewhat below average.
E. I am much below average.

201. How much do you feel that hard work is the basic factor of success?
A. To a great extent.
B. To some extent.
C. To a small extent.
D. To a very small extent.
E. Not at all.

202. If you found yourself in a leadership position, what size group would you prefer to lead?
A. Would prefer not to participate.
B. 1 or 2 people.
C. 3 to 10 people.
D. 10 to 20 people.
E. 20 or more people.

203. Under which kind of person do you think you would work best?
A. An understanding, warm and friendly person.
B. One who encourages new ideas.
C. One who lets me work alone.
D. Supervisors' personalities would have little influence on me.

204. After you finish your education, which of the following two kinds of jobs would you be most likely to choose?
A. One that offered opportunities for promotion but not much security.
B. One that offered a lot of security but not much in the way of promotions.
C. I don't know, it would depend upon the situation.

205. What is your ability to look at things from new and different points of view?
A. Outstanding.
B. Excellent.
C. Somewhat above average.
D. About average.
E. Somewhat below average.

206. How would you rate yourself on self-discipline?
A. Very high in self-discipline.
B. Above average in self-discipline.
C. About average in self-discipline.
D. Probably below average in self-discipline.

207. How do you feel about your intellectual and artistic ability?
A. Am very confident of both.
B. Am quite confident of both.
C. Quite confident about my intellectual ability, but not as confident about my artistic ability.
D. Quite confident about my artistic ability, but not as confident about my intellectual ability.
E. Lack some confidence in both.

208. How do you rate your athletic ability compared to your classmates?
A. Near the top.
B. Above average.
C. About average.
D. A little poorer than average.
E. Much poorer than average.

209. How would you rate your ability to convince others of your opinions?
A. Outstanding.
B. Excellent.
C. Somewhat above average.
D. About average.
E. Somewhat below average.

210. How often do you speak to an audience, other than at school, such as a church or community group?
A. Often, at least once a month or more.
B. Occasionally, a number of times a year.
C. Rarely, a few times a year.
D. Very rarely, maybe once a year.
E. Never.

211. Suppose, in the future, you were offered a job with a chance to receive a large advance in salary and prestige in your occupation. What would you do if you knew you would be fired from this job if you didn't perform well?
A. Would stop me from taking the job.
B. Might stop me from taking the job.
C. Would be a serious consideration but it would not stop me.
D. It wouldn't matter at all.

212. In daily working situations, which one of the following would be most important to you?
A. Profit.
B. Fame.
C. Power.
D. Security.
E. Self-expression.

213. Which one of the following is the most important to you?
A. Money.
B. People.
C. Ideas.
D. Things.
E. Don't know.

214. How important is it to you to be financially successful?
A. Very important.
B. Important.
C. Somewhat important.
D. Unimportant.
E. Don't know.

215. How do you compare with all other students in your grade in intelligence?
A. Am much above average.
B. Am somewhat above average.
C. Am about average.
D. Am somewhat below average.
E. Am much below average.

216. In responsibility, which of the following best describes you?
A. Usually need some prodding and supervision in most things.
B. Conscientious in some things but not in others.
C. Conscientious but do not do more than is expected of me.
D. Sometimes do more than is expected of me.
E. Frequently do more than is expected of me.

217. How well do you do most things that you have decided to do?
A. Almost always do things better than most people.
B. Generally do things as well as most people.
C. Find that I don't do many things as well as other people.

218. Which one of the following characteristics would you most like to have or develop in your life?
A. Skillful user of practical knowledge (such as doctor).
B. Wealth and power (such as an owner of a successful company).
C. Creativity (such as an artist or inventor).
D. Well-liked and personable (such as a politician).
E. Intellectual (such as a philosopher).

219. How much would you prefer working alone as compared to working with a supervisor?
A. To a very great extent.
B. To a great extent.
C. To some extent.
D. To a small extent.
E. Don't know.

220. What do you think you would like best in a job?
A. A large salary.
B. Interesting work.
C. Security.
D. A lot of responsibility.
E. Opportunities for advancement.

221. About what percentage of students do you think you exceed in leadership ability?
A. 90 to 99%.
B. 80 to 89%.
C. 70 to 79%.
D. 60 to 69%.
E. Less than 60%.

222. Have you participated in community activities (such as fund-raising drives, political campaigns, etc.)?
A. Participate very often and enjoy them very much.
B. Participate fairly often and almost always enjoy them.
C. Participate occasionally and generally enjoy them.
D. Rarely participate due to lack of time and other interests.
E. Never participate due to lack of time and other interests.

223. How would you describe your ability to do different kinds of intellectual work in comparison to your classmates?
A. Outstanding.
B. Good.
C. Somewhat above average.
D. About average.
E. Somewhat below average.

224. How would you rate yourself in following through with something in spite of difficulties and distractions?
A. Well above average.
B. Above average.
C. About average.
D. Slightly below average.
E. Well below average.

225. If you had the opportunity to be in charge of a small part of a fund-raising campaign, would you take such an opportunity?
A. Yes.
B. No.

226. How would you describe yourself in originality compared to your classmates?
A. Much more original than most of my classmates.
B. More original than average.
C. Slightly more original than average.
D. About average.
E. Less original than average.

227. Have you ever been actively involved in a school or national election campaign (such as soliciting votes, putting up posters, stuffing envelopes, etc.)?
A. Yes.
B. No.

228. To what extent would you rather work with others than by yourself?
A. To a very great extent.
B. To a great extent.
C. To some extent.
D. I'd rather work alone.
E. Don't know.

229. Is the ability to persuade or convince people necessary for success?
A. Yes. It is one of the most important characteristics.
B. It is important, but not necessary.
C. It is probably helpful but other characteristics are much more important.
D. No. It is probably one of the least important characteristics.

230. How do you compare with your classmates in independence, that is, doing what you want to do, participating in activities in which you are interested, etc.?
A. Very independent.
B. Somewhat independent.
C. Not very independent.
D. I usually go along with what my friends want to do.

231. How many times have you organized or directed some church or social group activity (Bible class, Christmas party, etc.)?
A. Very often, 10 times or more.
B. Often, 3 to 9 times.
C. Once or twice.
D. None.

232. At what age did you first take a serious interest in an artistic area (painting, dance, music, sculpture, etc.)?
A. 6 or younger.
B. 7 or 8.
C. 9 or 10.
D. 11 years or older.
E. Never had a serious interest in an artistic area.

233. How many contests or competitions have you entered (debate, essay, citizenship, art or music, etc.)?
A. None.
B. 1 or 2.
C. 3 to 5.
D. 6 to 9.
E. Ten or more.

234. Which of the following best describes you?
A. Very competitive, willing to take risks in order to win.
B. Not competitive, winning is not usually worth the risks or trouble involved.
C. Neither is descriptive of me.

235. Rate the training you have received in your school.
A. Really outstanding.
B. Excellent.
C. Good.
D. Adequate.
E. Somewhat less than adequate.

236. Are your feelings more intense (that is, are you happier or sadder about more things) than your friends?
A. Definitely yes.
B. Probably yes.
C. About the same.
D. Probably not.
E. Definitely not.

237. Compared with the average person, how well do you think you understand yourself?
A. Much better than average.
B. A little better than average.
C. Average.
D. A little below average.
E. Quite a bit below average.

238. To what extent do you feel the average person appreciates art and music?
A. To a very great extent.
B. To a great extent.
C. To some extent.
D. To a small extent.

239. How many times have your parents been called to come to the Principal's office to discuss your problems (poor grades or misconduct)?
A. Never.
B. Once.
C. Two or three times.
D. Four or five times.
E. Many times.

240. How often do you attempt to figure out why you act as you do?
A. All the time.
B. Frequently.
C. Occasionally.
D. Rarely.
E. Very rarely.

241. How many magazines do you read regularly?
A. None.
B. 1.
C. 2 or 3.
D. 4 to 6.
E. 7 or more.

242. How concerned are your friends about making good grades and going on to college?
A. Very concerned.
B. Quite concerned.
C. Somewhat concerned.
D. Not very concerned.

243. To what extent do you receive adequate recognition for your work from your teachers?
A. To a very great extent.
B. To a great extent.
C. To some extent.
D. To a small extent.
E. To a very small extent.

244. Would you persist in your present career choice if you could not find a job or had other difficulties?
A. Yes.
B. Am not sure.
C. No.
D. Have not decided what I want to do for a job.

245. To what extent do you feel you have improved in your areas of special interest on the basis of the training received at your present school?
A. To a very great extent.
B. To a great extent.
C. To some extent.
D. Very little, if any.
E. Have no area of special interest.

246-252.
Indicate how interested you have been in the activities listed in the next 7 questions. Use the scale below for these questions.

A. Very interested.
B. Somewhat interested.
C. Indifferent--neutral.
D. Mild dislike.
E. Strong dislike.

246. Student political activities.

247. Helping others.

248. Public speaking.

249. Talking with older people.

250. Reading biographies or autobiographies.

251. Reading news magazines.

252. Instructing young children.

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253. How good are you in music?
A. I have never had any interest or ability in music.
B. I have been active in instrumental and/or vocal groups.
C. I have been active in school or community groups and have some recognition as a soloist.
D. I have been very interested in music and have entered competition (either as a performer or as a composer of an original piece of music or score).
E. I have an extensive background in music. I have entered competition and have won one or more prizes (either for my own performances or for the creation of an original piece of music).

254-262.
Indicate how often, compared to other students, you have participated in the activities listed in the next 9 questions. Use the following scale for these questions.

A. Considerably more often than other students.
B. More often.
C. About average.
D. Less often.
E. Considerably less often than other students.

254. Tell jokes.

255. Pleasantly correct mistakes of others.

256. Spend time at the library.

257. Have friends ask my advice.

258. Introduce people at a party.

259. Remember names and past activities clearly.

260. Talk with a stranger.

261. Work on personal hobbies.

262. Talk about yourself and your activities.

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263. Which of the following kinds of jobs would be most attractive to you, assuming pay and other considerations were equal?
A. A job that provides a lot of involvement and communication with other individuals.
B. A job that involves only a little involvement with other individuals.

264-272.
Consider the occupations listed in the next 9 questions. Indicate the extent of your interest in these jobs by using the following scale.

A. Very interested.
B. Interested.
C. Don't know--indifferent.
D. Mild dislike.
E. Strong dislike.

264. Salesman.

265. Reporter.

266. Engineer.

267. Office manager.

268. Office worker.

269. Magazine editor.

270. Sales manager.

271. Politician.

272. Artist (music, painting, dancer, actor, etc.)

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273. In which of the following situations would it be most difficult or unsatisfactory for you to work?
   A. In a place that did not allow me much freedom to do what I wanted.
   B. In a place where I didn't know what was wanted.
   C. Don't know.

274. If you were working, which of the following would you be most concerned with?
   A. Getting the job done.
   B. Working smoothly with others.

275. How often have you been an organizer or group leader?
   A. I have never considered myself as an organizer or a leader of groups and have preferred to remain in the background.
   B. I have sometimes organized small groups (such as study or discussion groups) and considered myself at the time to be the leader of the group.
   C. I have been fairly active in student government, or community organizations and have acted as an influence in seeing that goals are accomplished.
   D. I have been quite active in student government and organizations, or community organizations. I have been the prime mover in setting up goals or projects and seeing that they reach completion.

276. How interested are you in science?
   A. I have little or no interest in science and complete only necessary classwork.
   B. I have some interest in the sciences. I spend some of my free time working on projects or papers beyond what is required for classwork.
   C. I have quite a bit of interest in science. I spend a lot of my free time working on extra projects and/or papers. I have entered one or more projects in a Science Fair or similar competition.
   D. I have a strong interest in science. I devote much of my time to working on projects or papers. My work has been recognized by one or more prizes or awards.
   E. I have a very strong interest in science. I spend most of my time working on projects or papers. My work has been published or publicly recognized for its contribution to the field.

277. How good are you in art (drawing, painting, sculpture, ceramics, architecture, photography, etc.)?
   A. No real interest or achievement in art.
   B. Some interest in art. I have done some original work.
   C. A moderate interest in art. I have done some original work which has been exhibited in my school or by a local organization.
   D. A deep interest in art. I have spent some time in doing original work and have entered my work in various exhibits and contests.
   E. A very deep interest in art. I have spent a great deal of time in doing original work that has been exhibited. I have won one or more awards in competition.

278. How good are you at writing (stories, poems, themes, etc.)?
A. My ability in writing is limited.
B. I have some ability in writing. I have done some writing on my own.
C. I have a real interest in writing and have had some original work published in my school paper, annual or literary magazine.
D. I have a strong interest in writing. My original work has been published in school or community papers. I have entered my work in state or national competition.
E. I have a very strong interest in writing. My original work has won one or more prizes in competition and has been published in literary journals (other than in my school).

279. How good are you in the performing arts (dancing, acting, etc.)?
A. I have no interest in this area and do not participate in any such activities.
B. I participate in school organized productions in a minor way.
C. I participate in school organized productions and play a major role in either plays or recitals.
D. I am active in productions within the community as well as my school and have won recognition for my performances.
E. I am very active in this area. I have performed in both school and community productions. In competition I have won recognition or awards for my performances.

280. Describe the level of leadership abilities that you expect to achieve during your career.
A. Outstanding.
B. Somewhat above average.
C. About average.
D. Somewhat below average.
E. Don't know.

281. In a list of 100 typical people of your own age, where do you think you would rank in the ability to get along with people?
A. Among the top 25.
B. Among the next to the best 25.
C. Among the 25 just below the middle.
D. Among the bottom 25.

282. Which of the following kinds of jobs would be most attractive to you, assuming other considerations such as pay, were equal?
A. A job that involved a fairly well defined set of procedures and activities.
B. A job that had only certain general objectives, goals, etc., and how they were achieved was up to you.

283. Have you ever expressed how you feel about something (a joyous or sad experience) in words or through some form of artistic activity?
A. Often.
B. Sometimes.
C. Seldom.
D. No, never.

284. How often do you have an emotional experience when listening to classical music?
A. Don't listen to classical music.
B. Seldom or never.
C. Sometimes.
D. Frequently.
E. Very frequently.

285. Compared to your friends, how often do you get emotionally upset in a movie?
A. More often than average.
B. About the same as my friends.
C. Less often than average.

286. Which one of the following kinds of jobs are you most likely to choose when you apply for full time employment?
A. Craft--carpenter, electrician, etc.
B. Laborer.
C. Sales work.
D. Armed Forces.
E. None of the above.

287. Which one of the following kinds of jobs are you most likely to choose when you apply for full time employment?
A. Business.
B. Engineer, agriculture or technology.
C. Scientific fields.
D. Sales, persuasive fields.
E. None of the above.

288. Which one of the following kinds of jobs are you most likely to choose when you apply for full time employment?
A. Musician or artist.
B. Social service.
C. Medical fields.
D. Teacher.
E. None of the above.

289. In general, the people that I like best are:
A. Those that will allow me to make most of the decisions.
B. Those that will make some decisions themselves and allow me to make others.
C. Those that make most of the decisions so I don't have to be bothered.

290. Compared to other students, how would you describe your ability to look into the future, make plans, and then take appropriate steps to achieve what you want?
A. Outstanding.
B. Excellent.
C. Somewhat above average.
D. About average.
E. Somewhat below average.

291. How often do you enjoy being outside just looking at the sky, trees, and other beauties of nature?
A. Frequently.
B. Fairly often.
C. Sometimes.
D. Very rarely.
E. Practically never.

292. Compared to other students, how would you describe your ability to communicate with and understand people from other cultures who have different backgrounds from your own?
A. Outstanding.
B. Excellent.
C. Somewhat above average.
D. About average.
E. Somewhat below average.

293. Which one of the following would you like best in a job?
A. Opportunities for being creative.
B. Security.
C. Opportunities for demonstrating leadership.
D. None of the above.

294. When it comes to school activities, I prefer to:
A. Work as an organizer of others.
B. Work with other students.
C. Work alone.

295. If you had some extra time, which one of the following classes would you prefer to take?
A. Music.
B. Art.
C. Physical education.
D. Math.
E. Social studies.

296. What kind of people should a leader choose?
   A. People with similar ideas and personalities and the ability to get along with others.
   B. People with different ideas and personalities who have minds of their own.
   C. People the supervisor feels would work effectively with him.

297. How often do you generally check out novels and other books from a library that are not required reading?
   A. Don't do that kind of reading.
   B. Very seldom, once or twice a year.
   C. Occasionally, a few times a year.
   D. Fairly often, once a month or so.
   E. Frequently, almost every week.

298. How often do you go to the public library to browse and find books of general interest to you?
   A. Don't have a public library.
   B. Never.
   C. Once in a while.
   D. Occasionally.
   E. Frequently.

299. What grade are you in?
   A. 9th or below.
   B. 10th.
   C. 11th.
   D. 12th.
   E. College student.

300. How did you feel about filling in a questionnaire such as this one?
   A. I enjoyed it; I would enjoy a discussion with those who constructed it.
   B. It was interesting.
   C. I found it somewhat interesting.
   D. I found it neither interesting nor too distasteful.
   E. It was a nuisance; I resented it.

APPENDIX E

DATA SHEET TO ACCOMPANY BIOGRAPHICAL INVENTORY

Student's Name_____

School_____

Administrative Unit_____

Date_____

DO NOT FILL IN THIS BLANK
ID Number_____
MS Number_____

DIRECTIONS TO COUNSELOR: Check the one best choice for this student on each of the following items. Please use your best professional estimate on those items for which there is not adequate information available in the school records. All information about individual students will be treated as confidential.

1. Student's sex: male (1)____
   female (2)____

2. Student's race: White (1)____
   Black (2)____
   American Indian (3)____
   Oriental (4)____
   Other (5)____

3. Student's grade level as of September 1, 1973: Grade 11 (1)____
   Grade 12 (2)____
   Other (3)____

4. Student's Grade Point Average as of this date. Please estimate if not available in this form.
   95 or above (1)____
   90 - 94 (2)____
   85 - 89 (3)____
   80 - 84 (4)____
   75 - 79 (5)____
   70 - 74 (6)____
   Below 70 (7)____

5. Do you think the family of this student ranks economically
   above average in income (1)____
   average in income (2)____
   below average in income (3)____

6. In what type of community does this student live? rural (1)____
   suburban (2)____
   urban (3)____

_____
Counselor's Signature

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